PB-232 125

SURVEY OF EPA USER INTEREST FOR PROPOSED STATE IMPLEMENTATION PLAN AUTOMATED INFORMATION SYSTEM

Computer Sciences Corporation

Prepared for:

Environmental Protection Agency

November 1973

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TECHNICAL REPORT DATA
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1. REPORT NO.	2.	PB 232 125
EPA-450/3-73-011		

4. TITLE AND SUBTITLE	5. REPORT DATE
Survey of EPA User Interest for Proposed State Implementation Plan Automated Information System	November 1973
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Computer Sciences Corporation System Sciences Division 8728 Colesville Road Silver Spring, Maryland 20910	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO. 68-02-1095
12. SPONSORING AGENCY NAME AND ADDRESS Environmental Protection Agency Research Triangle Park, North Carolina 27711	13. TYPE OF REPORT AND PERIOD COVERED Final (8/15-11/30)
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

This Report Will Not Be Duplicated

16. ABSTRACT

This report describes a user survey which was conducted of selected EPA employees to determine their requirements with respect to state implementation plans. The results were analyzed and recommendations made as to how to satisfy these requirements. Where the requirement specified computerization, what to computerize and how to do it were also addressed. A feasibility study was performed to determine whether or not to automate any parts of the system.

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17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
State Implementation Plans User Survey Computers		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
Release Unlimited	Unclassified	131
	20. SECURITY CLASS *(This page)* Unclassified	22. PRICE $9.75

EPA Form 2220-1 (9-73)

SURVEY OF EPA USER INTEREST FOR PROPOSED STATE IMPLEMENTATION PLAN AUTOMATED INFORMATION SYSTEM

Prepared by

COMPUTER SCIENCES CORPORATION

For

Environmental Protection Agency
Office of Air Quality Planning and Standards
Monitoring and Data Analysis Division
National Air Data Branch
Durham, North Carolina

Under

Contract No. 68-02-1095

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ABSTRACT

This document presents the results of a survey to define EPA user requirements for a proposed State Implementation Plan (SIP) automated information system. It addresses the relationship of such a proposed information system to existing data bases such as NEDS and SAROAD. It describes and analyzes survey results. Finally, it makes recommendations based on the results regarding the computerization of certain parts of the SIPs.

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SECTION 1 - EXECUTIVE SUMMARY

A survey to define EPA user requirements for a proposed State Implementation Plan (SIP) automated information system was conducted for the National Air Data Branch, Monitoring and Data Analysis Division of the Office of Air Quality and Standards. The primary purpose of this survey was to determine what parts, if any, of the SIPs should be computerized, and in what manner (e.g., full text, abstracts). The survey, in the form of personal interviews, was conducted at EPA Washington, EPA Durham, four Regional Offices, and the Las Vegas NERC.

The existing SIPs differ considerably in size, level of detail, and format. They are not static documents, but are constantly undergoing update and change. In addition to the initially issued documents plus updates, the basis for an SIP data system might also include evaluation files, interpretive material, periodic reports, and county, city, and local codes.

The diverse nature of the SIPs does not provide a well-defined basis for standardized revision and update. In fact, there does not appear to be a standardized mechanism for update, such as the issuance of replacement pages. Perhaps because of this, there does not appear to be a definitive set of SIPs in existence, although one set each in Durham and Washington appear to have local recognition as being definitive. For a computerized system to be effective, it must be, or be equivalent to, the definitive system, and a standardized means to update it at regular intervals must be provided. It is recommended in this report that the elements that comprise the SIPs be identified, and a process for updating be established and tested before a comprehensive computerized system is implemented.

Survey results are presented in tabular form in Appendix D, and are analyzed in the report. Comments, made by interviewees regarding factors outside the survey questions, were recorded and are included.

Based upon survey results of those interviewed plus a projection of potential users from the six Regional Offices not surveyed, it is estimated that 20 SIP information system queries per day would be made. Most of these 20 queries would come from people who wish to access rules and regulations in some form. It is, therefore, recommended that computerization of rules and regulations be pursued as a first priority item.

Interest was expressed in baseline air quality and emission data. It is recommended that these data be compiled and published in report form. Interviewees expressed an interest in current information concerning monitoring stations. SAROAD and the SIP Semi-Annual Progress Reports provide a better source of this information than do the SIPs and it is recommended that they be utilized. Additional capabilities might be required in SAROAD to provide ready access to monitoring station information. Interviewees were interested in current resource information, which is not available in the SIPs but can be found in Air Pollution Control Program Grant information.

Rules and regulations related to new sources and modifications of existing sources were of interest. One means of accessing regulations might be by those regulations that apply to new and modified sources. A means to access new sources could also be provided as an additional NEDS capability. It is recommended that these two approaches be pursued. Interviewee interest in compliance schedules should be satisfied by the Compliance Data System; no additional SIP computerized capability should be required. Interest in other areas of the SIPs was comparatively slight, and it is generally recommended that computerization of those areas not be pursued at this time.

SECTION 2 - OBJECTIVE OF THE SURVEY

The purpose of this activity was to plan, organize, and conduct a survey to determine EPA user requirements for a planned State Implementation Plan (SIP) automated information system. The survey was designed to answer the following specific questions:

1. What parts of the SIPs should be computerized and in what manner (e.g., full text, abstracts, formatted files)?
2. What should the update frequency and methodology be and who should perform the updating?
3. What are the retrieval requirements, volumes, and request frequencies for information contained in the SIPs?
4. What are the turnaround requirements for update and retrieval of the SIP system?
5. What query capability is necessary for this system?

In addition, the relationship and interaction of the SIP user requirements with NEDS, SAROAD, and other data bases were to be investigated. The survey was also designed to define system requirements with respect to file interaction, priority on types of retrieval, unstructured requests, and cathode ray tube utilization.

The survey was conducted for the National Air Data Branch, Monitoring and Data Analysis Division, Office of Air Quality Planning and Standards. It involved personal interviews with cognizant EPA personnel at EPA Washington, EPA Durham, four Regional Offices, and one NERC. The interviews were conducted by Computer Sciences Corporation (CSC) personnel, accompanied by the Monitoring and Data Analysis Division project officer, Mr. Gerald Nehls.

SECTION 3 - SURVEY APPROACH

To collect information required to answer the questions posed, three primary means were available. These were: 1) questionnaires distributed and returned by mail, 2) telephone interviews, and 3) personal interviews. The last method was chosen for several reasons. Primarily, it was desired to get potential users of an SIP information system to express their needs as freely as possible. Thus a relatively free-form question-and-answer session scenario was developed; such a scenario is most effective when conducted as a personal interview. The relatively short length of time available (3-1/2 months) to develop questions, conduct the survey, and analyze and report results further precluded the use of a written questionnaire. To satisfy the scheduling requirements of many people, two or more interviews were frequently held at the same time. Telephone interviews would not have permitted such a ready interchange of information between more than two people. In addition, it would not have been possible to have telephone interviewees see and comment upon the sample figures contained in the survey questionnaire.

SECTION 4 - GENERAL DESCRIPTION OF THE SIPs

In the course of examining a sample of 12 State Implementation Plans to design the survey questions, the diverse nature and format of these plans were noted. The SIP volumes appear to fill anywhere from 1 inch to 2 feet of shelf space. This vast difference in quantity is due in part to the size and diversity of the states themselves, and because some states submitted entire plans for county, local, or other intrastate levels, thus resulting in the effect of several-plans-in-one with a consequent increase in the size of the SIP. It also reflects, however, a noticeable difference in the level of detail between certain SIPs.

The SIP volumes that were reviewed can be divided into three major parts: 1) correspondence, 2) main body, and 3) appendixes. The correspondence includes transmittal letters and letters related to requests for extension. In some instances, correspondence relates to additions and corrections to the SIPs, and relevant data might be contained therein. In such a case, a revision letter itself might contain the information used to update the SIP, as opposed to functioning only in a transmittal sense for replacement or additional pages. Correspondence, therefore, must generally be included as part of the SIP.

The main body is generally subdivided into major chapters that correspond to the sections defined in the Federal Register of November 25, 1971, Part 51, Subpart B - Plan Content and Requirements.

These 13 sections are:

- General Requirements
- Legal Authority
- Control Strategy: General
- Control Strategy: Sulfur Oxides and Particulate Matter

- Control Strategy: Carbon Monoxide, Hydrocarbons, Photochemical Oxidants, and Nitrogen Dioxide
- Compliance Schedules
- Prevention of Air Pollution Emergency Episodes
- Air Quality Surveillance
- Review of New Sources and Modifications
- Source Surveillance
- Resources
- Intergovernmental Cooperation
- Rules and Regulations

By combining the three control strategy sections into one, the two surveillance sections into one, and eliminating the general requirements section, which does not provide the basis for any user interest questions, the 13 sections were reduced to nine general categories, which provided a basis for the organization of the user questionnaire.

While these categories are addressed in all the plans that were reviewed, the organization and level of detail vary considerably between the plans. In particular, information related to a certain topic might often be addressed in various parts of a SIP, rather than in one place. Such a case is illustrated by the example mentioned above, when revision material is contained in the body of a letter, rather than as a replacement to existing pages.

Most of the plans reviewed contained appendixes, which varied considerably in scope and level of detail. Appendixes were frequently used for the presentation of emission inventory and air quality data in tabular form. In some cases, state laws showing legal authority to carry out the plans were incorporated as

appendixes. Appendixes were also used as a means to introduce changes to the original plans.

The Federal Register of May 31, 1972, published evaluations of the State Implementation Plans, stating approval and/or disapproval of these plans or portions of the plans. At this time, some states were required to submit additional transportation control plans. These additional plans must also be included as part of the SIPs, as should any additions or modifications to the plans, whether promulgated by EPA or enacted by the states. Several transportation plans were studied and survey questions were developed related to transportation.

This section has discussed the content and structure of the SIPs to demonstrate that, while they have a commonality of purpose, considerable differences exist between them and that they are changing rather than static documents. On the other hand, this discussion is not intended to be an evaluation of either the content or the quality of any SIP.

SECTION 5 - QUESTIONNAIRE FORMAT AND INTERVIEW SCENARIO

Two survey questionnaires were developed. One was concerned primarily with user interest in the nine major SIP categories. It also was designed to determine the current use of NEDS, SAROAD, and other data bases. A second questionnaire was used to determine the system requirements for computerization of areas of interest in the SIPs that were identified via the first questionnaire.

The interview scenario, starting with the first survey questionnaire, went as follows. Background information was obtained to identify each interviewee and his organization. Then a series of questions was asked to determine current use of NEDS, SAROAD, and other data bases. This area of questioning was developed to help determine the interaction of a potential SIP information system with existing data bases. Then several general questions were asked. These questions were SIP-related, but did not fall under any of the nine major categories. Finally, the nine categories were addressed by asking if the interviewee had a general interest in the first category (legal authority). If the answer was yes, specific questions under that category were asked. If the interviewee was not interested in computerization of SIP-related legal authority information, then the next category was addressed. In this manner all nine categories were covered. Then the interviewee was asked to provide any additional comments to ensure that all areas of potential interest were identified. The first survey questionnaire is included in this report as Appendix A.

The interview scenario continued using the second questionnaire. The interviewee was asked to rank the SIP categories of strongest interest. Questions were asked concerning those categories of interest regarding SIP computerization requirements. These included job turnaround, frequency of use, and responsibility for updating a computerized SIP system. These questions concluded the interview. This second questionnaire is included as Appendix B to this report.

Although this scenario was generally adhered to, interviewees sometimes expressed opinions and wishes that were not in direct response to questions. This free exchange of information was considered useful and was not discouraged. Many of the comments made by interviewees are included in Section 7 of this report.

SECTION 6 - DESCRIPTION OF SAMPLE SURVEYED

The survey was conducted at EPA Washington, EPA Durham, the Las Vegas NERC, and four EPA Regional Offices. The individuals surveyed are listed in Appendix C. An extensive sample of people in EPA Washington and Durham who were thought to have an interest in such a proposed information system were contacted by Mr. Nehls or by a CSC task member. All who expressed interest were interviewed. On occasion, one individual was designated by a respondent to represent a particular branch or section, rather than have each potential SIP information system user in the organization be interviewed. This was done primarily when it was felt one person's opinion would represent the entire organization accurately. A means to weigh this situation was developed by asking that the estimated number of times the SIP information system would be accessed (e.g., number of estimated runs per week) for the entire organization represented. In that way, an appropriate estimate of the frequency of use by the entire organization was obtained.

A total of 53 people were interviewed. Nineteen were interviewed in Durham, 11 in Washington, 21 in the Regional Offices, and 2 in the Las Vegas NERC.

SECTION 7 - ANALYSIS OF RESULTS

7.1 INTRODUCTION

This section explains the Appendix D tables that display the survey results. These results are separated into three groups: EPA Durham; EPA Washington and the Las Vegas NERC; and the Regional Offices. Results were separated in this fashion so interviewees can see readily any significant differences between group opinions. Because the Las Vegas NERC appeared to be more closely associated with EPA Washington than with Durham or the Regions, it was so grouped.

After a discussion of results for these three EPA groups, results related to the use of NEDS, SAROAD, and other data bases are presented. A discussion of results related to general SIP questions concludes the section.

7.2 EXPLANATION OF APPENDIX D TABLES

Table D-1 summarizes, for the 19 Durham interviewees, general interest in the nine SIP categories and indexing. The indexing capability would provide the user with page numbers and/or section and subsection references in response to key word queries. The user would then refer to printed (as opposed to computerized) SIP volumes for the desired information, using the reference numbers provided via such a computerized indexing capability. Such a capability, if implemented, is not envisioned as an index to all SIP categories. Any portions of the SIPs that are computerized as full-text files would not also be indexed.

Interest in a given category was determined by such questions as, "Are you interested in accessing SIP information related to Category X?" for each of the nine categories and indexing. After general interest for all categories was determined, respondents were asked to rank their categories of interest as: strongest interest, second strongest interest, and third strongest interest.

These rankings are shown in the table. Not all respondents indicated as many as three choices; some did not indicate any choices. Categories of interest for which no choice was expressed are indicated by Xs. The number of first, second, and third areas of interest are totaled for each category. A weighted total is then computed, using weighting factors of three for a first choice, two for a second choice, and one for a third choice. A ranking by weighted total is provided in the right-hand column.

Table D-2 presents the same information as Table D-1, for the Washington and Las Vegas interviewees' responses. Table D-3 provides information related to the Regional Offices, displayed in the same manner as Tables D-1 and D-2.

The order of presentation for the next group of tables is the same as for the first three (i.e., Durham, Washington/Las Vegas, and the Regional Offices). Because Rules and Regulations and Control Strategies proved to be the categories of greatest interest, specific areas of interest in these two categories were tabulated. Tables D-4, D-5, and D-6 depict information related to interest within Rules and Regulations for Durham, Washington/Las Vegas, and the Regional Offices, respectively. In these tables, general interest in the Rules and Regulations category, line 2 from Tables D-1 to D-3, is repeated for convenience. Interest in an indexing capability, similar to that described earlier but for Rules and Regulations only, is shown on line 2. Interest in an "historical" capability, to allow accessing of formerly effective, noncurrent regulations is shown on line 3. Interest in abstracts or tabular summaries of regulations is shown on line 4. Interest in full text is shown on the last line. The letter X indicates interest. The four columns at the right of the tables show (from left to right): total interested, percentage interested of those interviewed, percentage interested of those interested in Rules and Regulations, and rank by total interested.

Tables D-7 through D-9 depict information related to interest within Control Strategies for Durham, Washington/Las Vegas, and the Regional Offices,

respectively. Line 1 shows general interest, repeated from Tables D-1 through D-3. Lines 2 through 5 relate to baseline information contained in the SIPs. Lines 2 and 3 show interest in baseline emissions and air quality data, respectively, used in the formulation of the control strategies. Interest in the model or models used (e.g., rollback or AQDM) in the control strategy formulation is shown on line 4. Interest in baseline costs is shown on line 5. Lines 6 and 7 relate to mobile sources. Interest in accessing control strategies specifically related to mobile sources is shown on line 6. Line 7 shows interest in baseline mobile source cost data. The four columns at the right show totals in the same fashion as for Tables D-4 through D-6.

Tables D-10 through D-12 depict information related to: estimated computer query turnaround requirements; interest in a graphics output [i.e., cathode ray tube (CRT) capability]; and respondent opinion regarding where the responsibility to update a proposed SIP data base should lie. The tables are for Durham, Washington/Las Vegas, and the Regional Offices, respectively. Categories associated with computer query turnaround requirements are: Within Hours or As Soon As Possible (ASAP), Within a Day, About 2 or 3 Days (longer than a day and less than a week), About 1 Week, and Over a Week. Respondents were asked to estimate their typical computer requirements, assuming that their categories of interest were available in an SIP data base. CRT interest and responsibility for SIP data base updating are shown following job turnaround.

Tables D-13 through D-15 show, for Durham, Washington/Las Vegas, and the Regional Offices, respectively, estimated frequency of use of a proposed SIP information system and the desired extent of data. Frequency of use is defined as the number of computer queries submitted daily, weekly, monthly, semi-annually, or annually. Extent of data refers to the level of detail that would normally be desired in accessing SIP data. Levels of detail from which the respondent could select were EPA region, state, AQCR, and local.

Tables D-16 through D-18 show the frequency with which interviewees desire the proposed SIP information system to be updated.

Table D-19 indicates the interviewees who are current users of the NEDS and SAROAD systems. Tables D-20 through D-22 show the use of data bases other than NEDS and SAROAD [i.e., Bureau of the Census, GSA Property, Form FPC-67 (Federal Power Commission), Dun and Bradstreet, Polk Vehicle Registration, and Federal Facilities Files]. While the use of these data bases does not directly relate to a potential SIP information system, they are available to EPA users via the National Air Data Branch. Response shown in Tables D-20 through D-22 reflects use of the other data bases in both printed form and via the NADB computer tapes.

7.3 EPA DURHAM

In this section, summary information, extracted from Appendix D, is presented and evaluated for EPA Durham interviewees. In addition, user comments and requests concerning computerization of portions of the SIPs are noted. These comments and requests are not generally in response to specific survey questions, but instead represent individual opinions and wishes that were volunteered.

The rankings and weighted point totals from Table D-1 are repeated below, for convenience.

Rank	Category	Weighted Point Total
1	Rules and Regulations	36
2	Control Strategies	19
3	Surveillance	13
4	Legal Authority	5
5	New Sources	4
	Compliance Schedules	4

Rank	Category	Weighted Point Total
7	Resources	3
8	Intergovernmental Cooperation	2
9	Emergency Episodes	1

Each category in rank order is described below. Pertinent comments made by interviewees are included, along with interpretations of results, whenever applicable. Interviewees generally were interested in more than one topic or subcategory; thus the interest totals of subcategories are greater than the interest totals by category.

7.3.1 Rules and Regulations

Of the 19 Durham interviewees, 12 expressed an interest in the computerization of rules and regulations. Table D-4 lists subcategories of interest.

Eleven people indicated that abstracts, or summaries of the regulations would be satisfactory for their needs. Sample summaries and abstracts are provided in Tables E-1 and E-2. Table E-1 shows a summary of North Carolina Air Pollution Control Regulations for sulfur compound emissions and nitrogen oxide emissions, and a process weight table. Table E-2 shows 1975 SO_X requirements for coal-burning equipment, by AQCR, for Alabama, Alaska, Arizona, Arkansas, and California. Table E-2 has the advantages of correctness and easy readibility. A disadvantage is that a Remarks section is invariably required for tables of rules and regulations.

One person indicated a need for a full-text capability and felt abstracts might not be completely reliable, insofar as the meaning of a regulation could be distorted by the word selection used in formulating the abstract. Two indicated a need for both full text and abstracts.

Six indicated a desire for an indexing capability. Indexing would not be considered for computerization if either a full-text or abstract capability were implemented. In both cases, page or SIP section references could be provided, thus making indexing redundant.

Four were interested in obtaining historical information, i.e., ability to access noncurrent regulations. One of these felt that while such a capability would be desirable it might not be cost-effective to provide it. Another felt that while it was desirable to obtain historical information, such a capability would not be used very frequently.

One person indicated a desire to access complex source regulations.

One expressed an interest in a summary table showing effective dates of mobile source regulations, including the compliance date.

One interviewee expressed an interest in determining an emission output, such as sulfur content, for a particular source or group of sources, via NEDS, and then comparing it with the value that would result if a different regulation was in effect.

Seven interviewees responded specifically to how frequently they felt the regulations portion of a proposed SIP data base should be updated. All indicated that updating should take place whenever revisions were published in the Federal Register, or as soon as possible. Several of these estimated that, on the average, new or revised regulations are published weekly in the Federal Register, and that typically four or five regulations might be affected at one time.

7.3.2 Control Strategies

Fourteen of the 19 Durham interviewees expressed an interest in control strategies. This is two more than the number who expressed an interest in rules and regulations. Due to the stronger interest in the latter, however, the weighted point total was higher for regulations than for control strategies.

Questions were asked to determine interest in accessing baseline data related to the development of control strategies for stationary sources.

Eight were interested in accessing air quality baseline data and six were interested in accessing baseline emissions data. Several people indicated that the baseline emission data was of poor quality. One indicated that baseline air quality data would be difficult to find in certain SIPs. Interest in predicted emission and predicted air quality data was also shown by one person, who felt that such information might best be made available in published report form, rather than via a computerized information system.

Seven people were interested in accessing information related to models used to develop control strategies in the SIPs.

Six were interested in cost data associated with stationary source control strategies implementation, if such data are generally available. One person commented that cost data were available only if the Implementation Planning Program (IPP) had been run, and felt that this had not occurred frequently. This person also felt that most of the available information found in the SIPs related to mobile source control strategies was probably outdated and of dubious value. Concerning mobile sources, five were interested in information related to control measures, and two were interested in associated cost data, if available.

7.3.3 Surveillance

Eleven of the 19 Durham interviewees indicated an interest in surveillance information. Surveillance questions were related to Figures 8 through 11 on pages A-21 to A-24. Four were interested in information similar to that displayed in Figures 8 and 9. Figure 8 shows, in tabular form, monitoring techniques, types of sensors, and averaging times by pollutant, for a given monitoring station or group of stations. Wind speed and wind direction are also shown. Figure 9 shows the station location, starting and ending dates,

and an indication of pollution density and population density for certain stations. Six were interested in a table similar to that shown in Figure 10, which gives for specific areas AQCR, the minimum number of federal monitoring sites required vs. the number of state proposed sites, etc. This information is categorized by pollutant and further subdivided by equipment type (e.g., gas bubbler). Seven were interested in displays similar to Figure 11, which provides criteria for station location. These figures were incorporated to show respondents generic types of displays of SIP information, rather than to define output formats specifically.

One respondent noted that information displayed in Figure 8 generally is available in SAROAD. This person also noted that data contained in the first two columns in Figure 9 are also available via SAROAD. It was indicated by one respondent that station location information, such as might be displayed in Figure 9, should be more specifically given than by street address. It was noted by several people that information displayed in Figure 11 would be difficult to obtain in all the SIPs. Although most respondents indicated that the proposed data base should be updated as new data becomes available, less urgency was associated with surveillance updating than with the updating of rules and regulations.

7.3.4 New Sources and Modification of Existing Sources

Six people interviewed were specifically interested in new source information. One of these indicated a possible interest in the ability to access this portion of the SIPs on a full-text basis. Two indicated an interest in text abstracts. Three persons indicated that they would like to be able to access an inventory of new sources since a preselected date. One indicated a desire to access an inventory of new sources by SIC code and two desired access by SCC code. Two indicated that they would use NEDS to obtain the information they desired, and therefore would not require a new source file specifically as part of an SIP data base. One indicated the desire to access new source standards by state

and by AQCR. Another indicated the desire to access the location of new or modified sources, the type of source, who tested the source, the results of the testing, and whether compliance with new source performance standards was required. Another respondent indicated a desire to reference permit systems and questionnaires or forms that states might employ to register new and modified sources. This person also would like to have available by state what new and modified sources are reviewed, and what information is required to be submitted by the source.

7.3.5 Compliance Schedules

While 11 interviewees showed an interest in accessing information related to compliance, survey tabulations indicate that there is a lack of strong interest in this area. A possible explanation of this is that the Compliance Data System (CDS), developed by the Office of Enforcement and General Council (OEGC), is expected to supply much of the information that might be supplied in a compliance schedule section of an SIP data base. Almost everyone interested in compliance indicated they would use CDS.

Four wanted information that would tell whether the compliance schedules were those submitted by the state or those enacted by EPA. Three indicated that some kind of abstracts or summaries of the schedules should be made available. Two felt that it would be desirable to identify any variations permitted from compliance schedules. Two specifically stated that a compliance schedule portion should not be incorporated as part of an SIP data base, that CDS would be satisfactory. One person was interested in information that would be provided by the pollutant source, giving its schedule for compliance. Another wanted information regarding when a region (e.g., AQCR) is scheduled to come into compliance. Two people were interested in compliance related to area sources. There apparently will be no provision in CDS for area source compliance information. One person indicated a desire for summary information (e.g., the

number of compliance schedules approved, and the number of schedules disapproved).

7.3.6 Legal Authority

Five people interviewed in Durham expressed an interest in computerization of information related to legal authority. For the most part, this interest was of a general nature, rather than related to specific requirements. Three people were interested in whether a state has provided itself with the proper legal authority to execute an implementation plan.

7.3.7 Resources

Six Durham interviewees expressed an interest in resource information. Five of these expressed a general interest in the subject of resources, while the other had more specific requests. These include updates to the resource information contained in the SIPs, resources estimated for the enactment of transportation controls, job classifications of state employees, and information showing the states that are spending less than the SIP budget estimates. This person wanted access to historical data, not only current data; not all of this data is available in the SIPs. Two were interested in a tabular display of salary estimates, such as that shown in Figure 12, page A-27. The person with greatest specific interest in resources indicated that he felt that this portion of an SIP data base should be updated quarterly.

7.3.8 Intergovernmental Cooperation

Five interviewees were interested in intergovernmental cooperation. One of these expressed interest in abstracted portions of the SIPs. Three of the five were particularly interested in being able to identify readily the agencies in a state that are directly responsible for specific functions. Such information, if generally available, would lend itself to a tabular presentation. This was done in the Georgia SIP where, for each county, responsibilities were tabulated as state and/or local. The categories in this table were quite detailed. One user

who had a relatively strong interest in intergovernmental cooperation felt that this information should be updated quarterly.

7.3.9 Emergency Episodes

Three people were interested in information related to emergency episodes. Two of these were interested in a display such as the one shown in Figure 5, page A-17. All three expressed an interest in knowing whether states had developed emergency control programs for point sources. Two were interested to know the states that have submitted contingency plans; one of these wished to have portions of these plans available in abstract form via computer. One was interested in what type of control action is to be imposed for a particular episode stage by source type. This type of information is depicted in Figure 6, page A-18. Two were interested in a table of emergency source categories that might be displayed by AQCR, and is depicted in Figure 7, page A-19.

One was interested in information related to exemption from controls of certain source categories, information related to the closing of industries, and any priorities related to prohibition and restrictions of various activities during emergency episodes. This person was also interested in any additional monitoring requirements that might be imposed during emergency episodes and, in particular, the stations that were designated for this additional monitoring.

The interviewee who expressed the strongest interest in this category felt that emergency episode information should be updated as frequently as possible.

7.4 EPA WASHINGTON AND LAS VEGAS NERC

Survey results for EPA Washington and the Las Vegas NERC are discussed in this section. The format used for presentation of results in this section is the same as that used in the previous section.

The rankings and weighted point totals from Table D-2 are repeated below, for convenience.

Rank	Category	Weighted Point Total
1	Rules and Regulations	21
2	Control Strategies	17
3	Surveillance	9
4	Resources	4
	New Sources	4
6	Legal Authority	3
7	Emergency Episodes	1
8	Compliance Schedules	0
	Intergovernmental Cooperation	0

7.4.1 Rules and Regulations

Eleven interviewees expressed an interest in the computerization of rules and regulations. Several people expressed an interest in more than one subcategory, as shown in Table D-5. A summary of this interest is given below.

Six were interested in abstracts or summary information, while five preferred a complete text capability. Included among these interviewees were three who wanted both full text and abstracts. Two who wanted full text felt that abstracts would not be reliable. Three wanted an indexing capability, and three were interested in the capability of obtaining historical information. All of the latter felt that a historical capability, while useful, would not be essential. Two expressed a general interest, and did not specifically indicate a preference for any of these categories.

One respondent who was interested in both full text and abstracts felt that regulations do not lend themselves well to summaries, but that summaries would be useful if enough accurate information and detail could be included; he also felt

that it would be difficult to perform this abstraction or summarization accurately. This person expressed an interest in accessing local regulations, when they are more stringent than state regulations. In addition, he was interested in the inclusion of point source locations in UTM units, when point sources are identified specifically in a regulation. Two felt that regulations should all be expressed in common units (e.g., micrograms per cubic meter). One person specifically mentioned that the effective date of the regulation should be included. Another noted that a proposed SIP data base should be able to differentiate between regulations that relate to new and to existing sources. One expressed an interest in accessing regulations on an exclusion basis (i.e., which plants are not included under certain types of regulation). Several people wanted to be able to evaluate the incremental contribution or benefit that would be derived from specific regulations. These people also were interested in the increase in surveillance requirements associated with increased transportation controls.

It was the general consensus of those most strongly interested in rules and regulations that this part of the SIP data base should be updated as frequently as new information becomes available.

7.4.2 Control Strategies

Eight of those interviewed in this group were interested in control strategy information. All of these expressed an interest in more than one subcategory, as is shown in Table D-8. All eight were interested in baseline air quality data and in the models used to establish the control strategies for stationary sources. Six were interested in the baseline emissions data. Six were interested in accessing information related to mobile source control measures. Two were interested in costs associated with both stationary and mobile source control strategies. One indicated a desire to see baseline data used in transportation plans that relate to mobile sources. One person expressed an interest in being

able to determine current air quality versus the air quality when the SIPs were developed. Those who expressed a strong interest in control strategy information felt that this part of a proposed SIP data base should be updated as soon as new information becomes available.

7.4.3 Surveillance

Seven of the Washington and Las Vegas interviewees were interested in SIP-related surveillance information. Several people indicated an interest in more than one subcategory, as indicated in this discussion. Four interviewees specifically indicated that SAROAD data would fill their primary requirements. Three were generally interested in Figure 9, page A-22; two of these wanted information related to proposed monitoring stations. Three were interested in a display such as that shown in Figure 10, page A-23. Two were interested in the Figure 11 information (page A-24), if available. Two were particularly interested in station locations given in UTM units. These people were also interested in what pollutants are being monitored, and would be interested in some sort of display of station locations, possibly via an incremental plotter. One was particularly interested in quality assurance data (e.g., calibration of instruments). The respondents who were most interested in surveillance did not feel that information related to monitoring stations would need to be updated very frequently. One of these indicated that an annual update would be satisfactory.

7.4.4 Resources

Six were interested in information related to resources. Of these, one was specifically interested in a tabular display of salary estimates, such as the sample displayed in Figure 12, page A-27. This person was also interested in a table of physical resources that might include the number of items available and projected, such as testing equipment, monitoring equipment, and lab equipment. Another person was particularly interested in money and manpower data, both baseline and updates, in as much detail as possible. Another was

primarily interested in baseline information, broken down by function. The remaining three interviewees were interested in resources allocated to monitoring, and wanted this information on levels such as instrumentation funds, technical resources, manpower, and dollars. One person was interested in how many dollars and other resources are put into specific areas, and what benefit is derived from them.

7.4.5 New Sources and Modification of Existing Sources

Three interviewees were interested in information related to new sources. One of these expressed only a general interest. Another was particularly interested in being able to differentiate between rules and regulations that apply to new sources and those that apply to existing sources. This person and one other were interested in accessing inventories of new sources by all the categories mentioned in question 6, page A-25. These categories are: since a particular date, by SIC, by SCC, by political subdivision, by AQCR, by process, and by size. One was interested in projected new sources and in what controls apply to new sources.

7.4.6 Legal Authority

Three interviewees were interested in legal authority. Two of these indicated that any computerization related to this area should be on a full-text basis. Both particularly wanted to be able to access legal authority related to complex sources. One was interested in state code and constitutional citations, and full text of applicable legislation. Two people were interested in a display such as that shown in Figure 2, page A-8. This figure references statutes by number and gives a brief summary of each. Two were interested in legal authority related to motor vehicle emissions and land use controls.

7.4.7 Emergency Episodes

Two interviewees expressed an interest in information related to emergency episodes. In both cases, interest centered upon the regulatory aspects of this

part of the SIPs. Both were interested in accessing any contingency plans that might have been submitted for priority 1 regions. One noted that, due to the static nature of these plans, they would not have to be computerized. One expressed interest in Figures 5 and 6, pages A-17 and A-18. Figure 5 shows episode criteria by episode stage. Figure 6 shows, for a given stage, a summary of control action to be taken for certain source types. Both interviewees felt that summary information might be acceptable for this category. One expressed an interest in accessing information related to any emergency control programs for point sources.

7.4.8 Compliance Schedules

Nine interviewees expressed an interest in compliance schedules. Because no one expressed a strong interest in the subject, it was ranked at the bottom on a priority basis. Those who were interested intend to use the Compliance Data System; thus, there is little interest in computerizing SIP information related to compliance schedules. Notes and comments taken during the interviews are summarized below.

One person was interested in compliance schedules insofar as they relate to effective regulations. Another felt that he would like more details than are contained in CDS. He wants to know the control strategies that have been used by sources coming into compliance. This information is partly available via NEDS and SAROAD. He is also interested in what fuels are in use and the source of the fuels. It is not clear if this information is contained in the SIPs. Another also felt that more details would be desirable than are contained in CDS. This person would like to access detailed information (e.g., what stack gas cleaning system is used).

7.4.9 Intergovernmental Cooperation

Four interviewees were interested in this category. As with compliance schedules, no one expressed a strong interest, hence its low ranking. Two of the

four expressed only a slight general interest. One indicated that a table of state versus local responsibility for various regulatory functions would be useful. This table should indicate whether state or local regulations apply. Another was interested in who has the authority to enforce the most stringent regulation--state or local agencies.

7.5 REGIONAL OFFICES

Twenty-one people were interviewed at the Atlanta, San Francisco, Chicago, and Boston regional offices. Results of these interviews are given in Table D-3, a summary of which is provided below for convenience.

Rank	Category	Weighted Point Total
1	Rules and Regulations	30
2	Control Strategies	15
3	Resources	9
5	Legal Authority	5
	Surveillance	5
6	Emergency Episodes	3
	Compliance Schedules	3
8	Intergovernmental Cooperation	2
9	New Sources	0

A discussion of each category follows, given in rank order.

7.5.1 Rules and Regulations

Seventeen of the 21 people interviewed expressed an interest in rules and regulations. A summary of subcategory preferences taken from Table D-6 is provided below. As Table D-6 indicates, most of those interested in regulations are interested in more than one subcategory.

Ten of the 17 displayed an interest in abstracts or summaries of regulations, and 6 were interested in full text. Several of the latter felt that abstracts might

not be reliable. Seven were interested in accessing historical information. Six were interested in an indexing capability. Six expressed interest in knowing the source or sources of regulations (i.e., state or EPA). Three were interested in a standardized format for display of regulations, including a standardized set of units. An additional discussion of user comments is given in the following paragraph.

One person expressed an interest in regulations that apply to confidentiality of data (e.g., throughput of emissions). Another indicated a need to know the status of regulations (i.e., approved or disapproved). One respondent preferred process/weight curves as a means to summarize the regulations. One wanted to be able to access adopted, effective, and attainment dates of regulations. Of these, he felt that the effective date was most important. He was also interested in Federal Register publication dates of regulations by section number, and when regulations were proposed and when they were promulgated. Another person who was interested in summary information rather than full text felt that a table giving regulation numbers for source types by jurisdiction would be useful. A sample of this type of display was provided and is included as Table E-3. Another interviewee felt that as soon as a regulation change request was submitted, it should be incorporated into an SIP data base. It could be designated later as approved or disapproved. One person wanted to be able to identify regulations that give delegated authority from the Federal Government regarding new source performance standards. Three people were interested in accessing effective dates of regulations. Further discussion related to dates associated with regulations is contained in Section 8.5.2 of this report. One person noted that rules and regulations are available in a non-EPA, weekly publication called the Environment Reporter. This publication is available in that regional office. The Environment Reporter publishes federal laws, federal regulations, and state air laws in addition to other environmental information. It does not, however, include rules and regulations at the local (i.e., city or county) level. Interest was expressed by one person in being able

to determine the number of sources in an AQCR for which a particular regulation applies. Another person felt that an EPA evaluation of the quality of regulations would be desirable.

7.5.2 Control Strategies

Seven people interviewed in the regional offices expressed an interest in control strategy information. Of these, five were interested in baseline emissions and air quality data, and in models used for stationary source control strategies. Four of these five were interested in control measures associated with mobile sources. One of the five was interested in cost data associated with stationary sources, but noted that it was not likely to be available in the SIPs. The other two people expressed only a general interest in control strategy information. This paragraph has summarized results listed in Table D-9. Additional comments made by interviewees are discussed below.

One person expressed an interest in control strategy formulation, particularly when computer models such as AQDM and IPP were used. This person was interested in the calibration method used when these two models were exercised and in an historical table of computer runs made. This information is probably not available in the SIPs. One person felt that a standardized summary format would be satisfactory for baseline emission data--the lowest level of detail would not be necessary. Another person felt that as complete an emission inventory as was available in the SIPs should be supplied.

7.5.3 Resources

Eight people were interested in accessing information related to resources. This part of the SIPs essentially contains baseline data with projections. Six of the eight were interested specifically in more current resource data; four of these felt this information would be available from Air Pollution Control Program Grant information. The fifth of these six people felt that current data would be available via the state quarterly reports. The sixth indicated that baseline data is being updated as part of SIP revisions. Of the remaining two,

one was primarily interested in resource information related to monitoring, as was one of the previously cited six. The last person expressed only a general interest in resource information. Specific comments are discussed below.

One person who was interested in monitoring related resource information wanted to access funding data for laboratories and instrumentation. He also wanted to see the percent of these funds allocated to monitoring.

Another person was interested in a table of salary estimates, as depicted in Figure 12, page A-27. He wanted to access tables of manpower and projected funds by the major function areas specified in Appendix K of the November 25, 1971 Federal Register. These areas are enforcement services, engineering services, technical services, and management services. He was also interested in a further functional breakdown, if available.

7.5.4 Legal Authority

Seven people were interested in accessing information related to legal authority. Four of these expressed only a general interest in the subject, and did not volunteer specific comments. Detailed comments from the other three are expressed below.

One person felt that an historical status of laws (e.g., enacted, repealed, unconstitutional) would be desirable. Dates and other related information associated with such a status report would be of use to this person. A summary of provisions of legal authority, such as that shown in Figure 2, page A-8 would also be desired.

The second person was also interested in an historical status of laws. He was further interested in accessing information related to legal authorities dealing with motor vehicle emissions and land use controls.

The third person was particularly interested in information related to suits filed against EPA that affect the SIPs. For example, this person might want to access all decisions that affect SO_2 regulations.

7.5.5 Surveillance

Five people were interested in surveillance information. One of these expressed only a general interest without any specific preferences. Comments made by the others are discussed below.

One person was somewhat interested in displays such as those shown in Figures 8 and 9, pages A-21 and A-22. He indicated that the figures, which show monitoring station locations and monitoring techniques, would be more useful if quality control information related to the monitoring equipment could be included. He indicated a desire for a map that might display all monitoring sites within a certain distance from a source. Such a map might be output, he felt, either via an incremental plotter or a cathode ray tube display.

Two people expressed an interest in Figures 9 and 10. One of these felt that monitoring site locations, updated as new information becomes available via semiannual reports, would be of value.

The last person expressed an interest in Figure 9 information. He was primarily interested in monitoring site locations within a particular area. He indicated he would then utilize SAROAD to get more specific information.

7.5.6 Intergovernmental Cooperation

Interest in this category was expressed by seven people. Interest appeared to be primarily related to intrastate cooperation, rather than interstate. Six of the seven expressed an interest in a table of state versus local responsibilities for various regulatory functions. One of these was also interested in accessing text displays from this portion of the SIPs. This person also wanted to see where agreements exist between states, with some indication of the type of agreement (i.e., memos, laws, etc.). Another of these who was interested in a table of state versus local functions felt that this information would be useful for Air Pollution Control Program Grant purposes. The seventh person was

primarily interested in names, addresses, and organization charts that would aid in establishing responsibility between various intrastate agencies.

7.5.7 Emergency Episodes

Five people were interested in accessing information related to emergency episodes. Two of these were interested in a general sense only, and made no specific comments.

One of the other three interviewees expressed an interest in accessing the first 10, 25, 50, etc., point sources that would be subject to control in a particular area during an emergency episode. The number of sources would be an input parameter to the computer run.

Comments from the other two are given below. Both were interested in the following information: a display that summarizes what control action is to be imposed for a particular stage by source type (Figure 6, page A-18), abstracts of contingency plans including control programs required of certain point sources, tabulations of prohibitions or restrictions of various activities during emergency episodes, exemptions of certain source categories from control, and information related to the people who have responsibility to combat emergency episodes. One was interested in abstracts of contingency plans. This person was also interested in accessing episode levels on an historical basis, to use them as a predictive tool. The other person expressed considerable interest in the subject of emergency episodes, and indicated that when he required information it was needed very quickly. For the most part he had already compiled much of the information, which is kept on file for ready update and access. Therefore, it is not clear that a computerized system would benefit such a person. His further comments and requirements have been included so all survey responses could be included in this report. He indicated an interest in a table of emergency source categories, as shown in Figure 7, page A-19. Questions that arise when an emergency occurs, to which he must respond, are as follows: When were the monitoring instruments in the area last calibrated? How

reliable is the reading and how qualified is the operator? What contingency plans are supposed to be enacted? What is actually being done? Will there be any requirements for EPA inspections? Much of the information that is required is not in the SIPs. He also noted that air quality information would be required on at least a daily basis during emergency episodes.

7.5.8 Compliance Schedules

Eleven interviewees expressed an interest in compliance schedules. As indicated for Washington/Las Vegas interviewees, while there is considerable interest in the subject of compliance schedules, most people intend to use CDS. Therefore, no strong interest was shown in computerizing SIP information related to this area.

One person expressed an interest in compliance schedules related to area sources. Several interviewees indicated that daily turnaround would be required for CDS runs in their region.

7.5.9 New Sources and Modification of Existing Sources

Four interviewees were interested in this category. Three expressed a general interest, without mentioning any specific requirements. The fourth was interested in information related to permit systems. He expressed an interest in an inventory of new sources by various categories, and felt that this could be handled via NEDS and CDS. He also expressed an interest in new or modified sources that might be exempted from applicable regulations.

7.6 USES OF NEDS, SAROAD, AND OTHER DATA BASES

7.6.1 Introduction

In addition to determining requirements related to a potential SIP information system, a secondary objective of this survey was to determine the interaction of such a system with NEDS, SAROAD, and other data bases. "Interaction" refers to the use, in one computer query, of two or more data bases, such as

a proposed SIP data base and NEDS. To assist in determining interviewee opinion regarding the interaction of a proposed SIP data base and other data bases, questions were asked concerning the use of these other data bases.

7.6.2 NEDS and SAROAD

Table D-19 shows current use of NEDS and SAROAD for Durham, Washington and Las Vegas, and the four regional offices that were surveyed. In this table, interviewees who specifically responded as using or not using these data bases are shown. Others who did not specifically respond can be assumed not to use either data base. Several interviewees, not shown in this table as users, estimated that future use of NEDS would be made when new NEDS programs, currently being developed, are available.

7.6.3 Other Data Bases

Tables D-20 through D-22 show the use of other data bases for Durham, Washington and Las Vegas, and the Regional Offices, respectively. The term "data bases" is used in its most general sense in the context of this paragraph. For the most part, interviewees were using data provided in printed form from the various organizations listed in these tables, rather than using computerized data bases. The National Air Data Branch does have tapes of data supplied by these organizations, and can provide selective printouts for certain categories of information. One purpose of this survey, not specifically related to the proposed SIP information system, was to discuss the availability of these data bases with interviewees. The Compliance Data System (CDS) is not included in these tables, but is discussed instead under the Compliance Schedule portions of this report.

Bureau of Census data usage has some relevance to a proposed SIP information system, because demographic data is contained, at least to some degree, in the SIPs. A significant number of interviewees (37 percent) use Bureau of Census data in their work. Most interviewees felt that demographic data contained in

the SIPs should not be computerized, because Bureau of Census data was sufficient for their needs. In addition, current demographic data are available via the Bureau of the Census, while any SIP data is base line in nature.

No interpretation of the remaining data presented in Tables D-20 through D-22 is attempted, because they do not specifically relate to a proposed SIP information system.

7.7 GENERAL QUESTIONS

Nearly all the SIP-related questions asked fell into the nine major categories that have been discussed. Several general questions were asked that did not fall into any major category. One of these related to interest in an indexing capability. Such a capability would not be utilized for portions of the SIPs that are to be computerized in full-text form. For other portions, such a capability would provide a means to input a key word or topic, and receive page, section, or subsection references. These references would then enable the user to access his area of interest via a set of printed SIP volumes. Results of the question related to indexing are displayed in Tables D-1 to D-3. Thirty people, or 58 percent, expressed an interest in such a capability.

Survey response to other general questions is not tabulated in Appendix D. Discussion and recommendations related to these questions are provided in Section 8.4.6.

SECTION 8 - RECOMMENDATIONS

8.1 INTRODUCTION

This section presents recommendations concerning computerization of the SIPs. It includes a discussion of what sources of information should be considered as a basis for an SIP information system. It also discusses the need to establish a systematic procedure to update such an information system. Along with this, it discusses survey results that relate to frequency of update and opinions regarding who should have the responsibility for performing the update. Specific recommendations, based upon survey results, are made regarding the portions of the SIPs that should be computerized. These recommendations are made in view of the interaction between a proposed SIP data base and other existing and proposed data bases. Additional discussions and recommendations are made concerning how such a data base might be accessed.

8.2 SIP INFORMATION SYSTEM RECOMMENDATIONS

8.2.1 Interest in Computerization

All 19 of the EPA personnel interviewed at Durham were interested to some degree in a computerized SIP information system. Eight of the 13 interviewed in Washington and Las Vegas, and 14 of the 24 people in the regional offices were also interest in the proposed SIP information system. All 12 of those who expressed little interest did voice some opinions regarding the portions of the SIPs most desirable to computerize. Most of these people indicated they would access a computerized data base if it were available.

8.2.2 Estimated Frequency and Volume of Use

Results from Tables D-13 through D-15 are combined and presented below.

Estimated Frequency of Use

	Survey Data	Survey Data Extrapolated
Daily or more frequently	8	11
Weekly	15	24
Monthly	13	19
Semiannually	1	1
Annually	3	3
Total	40	58

Twelve interviewees are not included in this total; most of these indicated they would use an SIP information system; however, they were unable to estimate their frequency of use.

The data in this table represents only the sample interviewed, not all of EPA. Four of 10 regional offices were surveyed. The regional results might therefore be multiplied by 2-1/2 to reflect all 10 offices; this procedure was used to obtain the data presented in the "Survey Data Extrapolated" column. No basis for a similar extrapolation for those people in Washington or Durham who might use an SIP information system but who were not interviewed is available. Therefore the data presented above represents a least upper bound.

In addition, one interviewee who estimated daily or more frequent usage indicated that about 30 queries per day would be submitted in his area if some computer output could be obtained within hours and the rest of the output obtained within a day. Another user estimated five queries a day would be submitted from his area. If these additional totals are included, and all requests are put on a daily basis, more than 50 queries per day would be submitted. The estimated 30 queries per day from this one potential user clearly dominate

the projected daily usage figure. However, if this user's requirements are discounted, the estimated usage still amounts to more than 20 queries per day. This lower projected usage is sufficient to warrant an automated SIP information system.

8.2.3 Recommendation to Pursue Computerization

Based on the survey results of an estimated minimum submission of 20 jobs per day, it is recommended that a computerized SIP information system be pursued further. Recommendations specifically related to the major SIP categories and to the general areas are discussed in Sections 8.5 and 8.6.

8.2.4 Time Requirements for Implementation

Nearly all interviewees who indicated a date by which they desired to have an SIP information system available for use stated that they could use such a system as soon as it could be made available. Several people noted that because clean air standards are to be met as early as 1975, an SIP information system should be available no later than autumn 1974. They felt that the primary need for such a system would be before the target dates designated for achievement of the primary standards.

Several interviewees further stated that if an SIP information system could not be made available before 1975, there would be little value in its implementation after January 1975.

Survey results were not entirely conclusive on this point, however. It was stated or inferred by several others, for example, that while clean air standards are to be met as early as 1975, the process of meeting them will continue over a period of years with corresponding revisions occurring to the SIPs. It was further stated that even after air quality standards are met for the major pollutant classes, SIP revisions will still be required in other areas, such as transportation controls and hazardous pollutants.

It is recommended that any implementation of an SIP data base be scheduled, if possible, to be completed no later than the last quarter of 1974. It is further recommended that any implementation that would not be completed before 1975 not be undertaken unless a subsequent survey indicates that new capabilities would still be of use at that time. Such a survey could be conducted quickly by telephone of no more than five or six of the most frequent potential users.

8.3 BASIS FOR SIP INFORMATION SYSTEM

During the course of conducting this survey for EPA, it became apparent that the SIPs cannot be conceived as static documents. Even the concept of documents initially issued, which undergo update and revision, is not entirely sufficient. To include all possible sources of information that define the SIPs, it is necessary to look beyond the basic documents and both State- and EPA-promulgated revisions.

8.3.1 Evaluation Files

During the initial EPA evaluation of the SIPs, considerable data were accumulated concerning the plans that are not part of the SIPs themselves. These data, referred to as evaluation files, are potentially part of an SIP information system.

8.3.2 Interpretive Material

The process of working with SIPs and SIP-related information has caused interpretations of these plans to be formulated. The most obvious form of interpretation is that issued via the courts. Court decisions probably constitute the best defined and most readily available of all the interpretive material related to the SIPs. However, people within EPA have developed and acquired additional interpretive information that supplements SIPs and their published updates. This interpretive material is potentially part of an SIP information system.

8.3.3 Periodic Reports

As previously noted, the SIPs are documents that are undergoing changes and revisions. This is particularly true in the area of rules and regulations and compliance schedules. In other areas, such as resources and surveillance, baseline information provided in the SIPs has not always been updated via SIP revisions or, if updated, not updated frequently. Individuals who are concerned with accessing data such as the current number and location of monitoring stations in a particular AQCR would not normally refer to the appropriate SIP or SIPs. Instead, the information would usually be obtained from a source or sources within EPA who were known to have acquired up-to-date information. Possible sources of this information are periodic reports issued by the states and by EPA that update baseline SIP information. Such a report is the First State Implementation Plan, Semi-Annual Progress Report for January 1 to June 30, 1973. Periodic reports are, therefore, potentially part of a SIP information system.

8.3.4 County, City, and Local Codes

In some instances, certain implementation plan responsibilities have been delegated to city, county, and various other jurisdictions within a state. For this reason, certain applicable rules and regulations that are not part of the SIPs and not federally enforceable might not be found in SIPs but, instead, are located in city or county codes or ordinances. To obtain all SO_X regulations for oil and coal, for example, it was necessary for one person at EPA Washington to access information from New York City Rules and Regulations and various other local regulations not in the SIPs. This survey has indicated that such an example might represent a typical query of a potential SIP data base. It appears, therefore, that such a data base, to be complete, should include such interstate codes.

8.3.5 Summarization

In this section, an effort is made to identify the various sources, in addition to the basic SIP documents, that might constitute the basis for a potential SIP information system. Potential sources of information from which a SIP data base might be defined are:

- Basic SIP documents
- State-issued updates and revisions
- EPA-issued updates and revisions
- Evaluation file data
- Interpretative information, including the results of court decisions
- Periodic EPA and state reports
- County, city, and local codes

This list is believed to be complete; however, other sources of information might exist.

Before starting the computerization of any portion of the SIPs, the elements that comprise such a system must be defined specifically. It is recommended that this basic and essential step be taken as an initial activity of the SIP information system development.

8.3.6 Establishment of a Definitive Set of SIPs

During the course of the survey, it became apparent that there is no single, definitive set of SIPs within EPA. EPA Washington, EPA Durham, and the Regional Offices maintain their own individual sets of SIPs. While these sets might be updated carefully and frequently, it was agreed generally by interviewees that no standardized procedure or timetable for updating exists. It is recommended that a definitive set of SIPs be identified or established before any effort to pursue computerization is begun.

8.4 UPDATING PROCEDURES

8.4.1 Development of Manual System

In conjunction with establishing the sources of information that are to constitute the basis for an SIP information system, it is desirable to create a data base, in the form of printed documents, before investigating computerization of any of the information. Additionally, before computerization, this SIP data base should undergo regular updates. This will identify any problems related to the flow of updating information before making such a system generally available. Specifically, this process would identify the length of time that elapses between the origination of new data items and their incorporation into the data base. If the elapsed time is longer than desired, steps could be initiated to reduce the time required to update. It is axiomatic that, unless an information system can be established in document form, accessed from a file cabinet, and updated "by hand," it will be impossible to perform comparable processes via computer.

Computerization of a manual system of this type adds additional possibilities of error and ambiguity (e.g., incorrect transcription of data to load sheets, keypunch errors, and nonstandard filing procedures). It is desirable to identify and correct as many potential problem areas as possible before the development of a computerized system. Therefore, it is recommended that the basis for the SIP information system be established and a process for updating such a system be established and tested before computerization is pursued.

8.4.2 Frequency of Updating

Any information system, regardless of its software sophistication, is only as good as the data available in its data base. The time interval between when new data are obtained and when new data are placed in the data base must be minimized to provide an optimal user-oriented capability.

Most of the people interviewed for this survey who desire to access rules and regulations feel that this portion of an SIP data base should be updated as soon as new information is received. Rules and regulations represent the area of strongest user interest, and it appears that updating of regulations should take place as often as weekly. This assumption is based on the comments of several interviewees, who felt that revised regulations might be published on an average of once a week in the Federal Register. To make weekly updates meaningful, a system of information transmission would have to be developed to get all the requisite information to the updating organization in a timely fashion. Indeed, this is necessary regardless of update frequency.

8.4.3 Organizational Responsibility for Updating

Interview results concerning where the responsibility for updating should reside were not conclusive. Regional office personnel expressed a willingness to perform the updates; Washington and Las Vegas felt that updates should be performed centrally, i.e., in Durham where the data base would be located. Durham interviewees were closely divided between a preference for regional and central updating. Several regional interviewees felt that they would be doing as much work by sending updates to a central location as they would be doing the updates themselves. No clearcut recommendations can be made on where the updating should be performed on the basis of the survey inputs.

A meaningful compromise is indicated in which the regions and the local EPA personnel would validate and prepare the data in the format required by the SIP system and Durham would be responsible for actually putting the new data into the master data file. This procedure emphasizes the distinction between the mechanics of updating and the responsibility for updating. The former involves data gathering, entry of data onto coding sheets, key punching, verifying, submission of computer runs to enter the data onto the data base, and various checking or verification processes. The mechanics can, and generally are,

handled by different parts of an organization to eliminate bottlenecks. Thus, in the case of a computerized SIP data base, all phases except the actual update job submission might be accomplished at the state and regional level. Verification of the goodness of the data could take place at one or several levels. Responsibility for updating is associated with actual job submission to perform the update (i.e., modify the data base).

There must be a centralized responsibility for preservation of the integrity of the data base, regardless of where and by whom the updates are performed.

8.5 RECOMMENDATION CONCERNING MAJOR SIP CATEGORIES

8.5.1 Introduction

In this section, recommendations are made concerning data base development for the nine major SIP categories. Recommendations made in this section are based on the survey results presented in Section 7.

8.5.2 Rules and Regulations

8.5.2.1 General Recommendations

It is recommended that computerization of the rules and regulations portion of the SIPs be addressed. Due to the high degree of user interest, computerization of the regulations portion of the SIPs should be addressed as the first priority item. While more interviewees preferred abstracts or summaries of regulations than preferred full text, estimated frequency of use data indicates that more inquiries would be made requiring access to full text.

In addition, several interviewees indicated that only full-text versions of rules and regulations would be satisfactory for their needs; they felt that summaries and abstracts might not be sufficiently accurate. For these reasons, it is recommended that data base development be considered on a full-text basis for rules and regulations.

8.5.2.2 Turnaround Requirements

As noted earlier in this section, one potential user estimates that his area would query an SIP data base 30 times a day, provided the turnaround would be no greater than 1 day, with the additional requirement that some of these 30 queries be answered within hours. It was clearly stated by the interviewee that if this sort of response could not be provided, an SIP information system would not be particularly useful. Therefore, it is recommended that the rules and regulations portion of an SIP information system be designed in such a fashion that response to remote locations (i.e., outside Durham) be possible within hours.

8.5.2.3 Parameters by Which Rules and Regulations Can be Accessed

One particular value in organizing rules and regulations in an SIP information system is the potential ability to access regulations readily by such parameters as source type and pollutant type. Some user preferences concerning parameters by which to access regulations are provided below:

- By date (i.e., effective date of the regulation)
- By source type, including mobile sources as a particular type
- By specific source (i.e., access one specific regulation)
- By pollutant type
- By fuel type
- By process type
- By political jurisdiction (i.e., state, county, city, local)
- By EPA jurisdiction (i.e., AQCR)
- By new sources and modified existing sources
- By existing sources

- EPA- or state-promulgated
- By type of regulation (i.e., control regulation, variance type, permit type)
- By source exclusion (i.e., the sources that are not included in a regulation)
- By permit (i.e., the sources that do or do not require permits)
- By local regulations that are more stringent than state regulations
- By confidentiality of data (i.e., throughput of emissions)
- By status (i.e., approved or disapproved)

The ability to access regulations with two or more parameters, all of which might apply, would be essential (e.g., pulp and paper mills with 100 tons of emissions). Such a list could be longer, as this list undoubtedly does not include all possible parameters by which to access certain regulations. Survey results indicate, however, that access by the first nine items in the list would satisfy most potential users. It is, therefore, recommended that access be provided initially by these first nine parameters. Additional capabilities could be provided at a future date. To do this, the design of the data records must be such that all parameters that might be utilized in the future are provided in the record. A list of items--not specifically parameters by which regulations might be accessed, but meaningful data items that interviewees expressed a desire to see--is provided below. Provision for these items, which might not be part of the regulations themselves, might be made in the data records.

- Date the regulation was adopted
- Attainment data associated with the regulation
- To whom does the regulation apply (i.e., supplier or user); there might be different effective data related to suppliers and users

- Expression of regulations in terms of common units
- Regulations that give delegated authority regarding new source performance standards
- Test methods (i.e., method by which a test value was determined)

8.5.2.4 Recommendation Not to Provide Historical Capability

Some interest was displayed in the ability to access noncurrent regulations (an "historical" capability). This interest was not sufficiently strong to justify the added storage requirements necessary to support such a capability. It is, therefore, recommended that an historical capability to access rules and regulations not be pursued at this time.

8.5.2.5 Recommendations Concerning Indexing, Abstracts, and Summaries

Assuming that a full-text capability for regulations is developed, it is felt that there would be little justification for an indexing capability for either regulations or for abstracts of regulations. The ability to access specific regulations and groups of regulations via the parameters previously described should obviate the need for a separate indexing capability. To provide abstracts, when full text is available, would be redundant. It is, therefore, recommended that indexing and abstracts of regulations not be implemented.

There was considerable interest in summary tables of rules and regulations; some interviewee-submitted samples are included in Appendix E. The compact, tabular format of this type of presentation is sufficiently different from full text that, if both were made available, no redundancy would result. It is recommended that the development of summary tables be pursued on a lower priority basis than full-text development.

8.5.2.6 Additional Recommendations

Recommendations for SIP information system development have thus far related to full text and summaries of regulations and how such information might be

categorized or defined. An additional capability of interest relates to the display of the number of regulations, as opposed to the full text of these regulations, that apply to categories previously listed. A user might, for example, request the number of regulations that relate to SO_X. Assuming that the result was a rather large number, the user might then request the number of SO_X regulations for a specific AQCR. Assuming a tractable number resulted, a third query could be made to access further details regarding these regulations.

The survey indicates that unless results from queries such as those described above can be provided within a short time (i.e., minutes or an hour), such a capability would have little value. To be meaningful, such a capability would have to be provided on a rapid turnaround, perhaps interactive, basis. Because such an option would be a useful adjunct to a full-text capability, it is recommended that it be investigated. It is further recommended that it be implemented only if it can be provided on a rapid turnaround basis.

8.5.3 Control Strategies

8.5.3.1 Discussion

Interest in this category was related primarily to the air quality and emissions data on which the control strategies in the SIPs were based. These data are available in the SIPs in varying levels of detail. These data are not identified as baseline SIP data in NEDS and SAROAD, and thus are not readily available via either system. Interviewees expressed an interest in accessing this baseline data to examine the control strategies set forth in the SIPs. There was also interest in the models and techniques used to develop the control strategies. Interest was also displayed in the percent reduction by pollutant that overall control strategies would effect. Very little interest was displayed in specific control strategies; instead, rules and regulations that implement the control strategies are of primary interest. Some interest was displayed in control strategy costs associated with both stationary and mobile sources. Such cost data are not generally provided in the SIPs.

8.5.3.2 Recommendations

Sufficient user interest was displayed in baseline air quality and emissions data so such data should be made available. Because the data are, by definition, static and unchanging, there does not appear to be sufficient justification to incorporate them into an information system. It is, therefore, recommended that this baseline data be compiled and published in report form. It is understood that such a report is currently being prepared within EPA. Such a report could also include information related to the model used for control strategy development. Modeling results, if available, could also be included. A figure or table depicting percentage reduction by pollutant, by time could be extracted from the SIPs and published. It is not recommended that any computerization of the control strategy portion of the SIPs be pursued at this time.

8.5.4 Surveillance

8.5.4.1 Discussion

Interest in this category was centered about the number of monitoring stations, monitoring station locations, and information related to monitoring techniques. Interviewees were interested in current information, rather than the baseline data contained in the SIPs. Some interest was displayed in quality assurance data such as calibration of sampling instruments; however, this type of information would generally not be available via the SIPs.

Certain information related to current monitoring site locations is contained in the National Aerometric Data Bank (NADB), and is available via the SAROAD system. This information, which was of general interest to interviewees, includes site locations, monitoring station types, site elevations, and supporting agency information. Current information related to the number of monitoring stations, existing and proposed, is contained in the State Implementation Plan Semi-Annual Progress Reports.

8.5.4.2 Recommendations

There was no discernible interest in full-text access of the surveillance portion of the SIPs. SAROAD and the SIP Semi-Annual Progress Reports provide an existing source of current monitoring site information. The basic SIP documents do not provide current information, but instead contain baseline information, which was compiled when the SIPs were first written. Information related to monitoring locations does not change rapidly; most interviewees felt that semiannual updates of this information in a proposed SIP data base would be sufficient. It is recommended, therefore, that no specific computerization of the surveillance section of the SIPs be initiated. It is recommended that a capability be developed in SAROAD to display monitoring site information by state or AQCR.

8.5.5 Legal Authority

Interest in computerization of legal authority information was expressed by 15 of 52 interviewees. Interest was primarily in whether a state had provided itself with sufficient legal authority to obtain compliance with clean air standards. SIP-related legal authority information does not appear likely to change frequently. For these reasons, it is recommended that no computerization be initiated for this SIP category at this time.

8.5.6 Resources

Approximately half of the interviewees were interested in resource information. This interest was primarily related to current information, rather than the baseline data with projections that appear in the SIPs. Most of the current information desired would be available from Air Pollution Control Program Grant information. The latter is not part of a potential SIP data system, but is itself a potential area for computerization, apart from the SIPs. If the Air Pollution Control Program Grant information is made available in computerized form, then it is recommended that baseline SIP resource data be included.

Another means to make the SIP resource data more readily available would be to compile and publish it via printed form. It is recommended that no computerization of SIP-related resource information be undertaken.

8.5.7 New Sources and Modification of Existing Sources

Specific interest in this category was expressed by one-quarter of the interviewees. Most of the interest relates to rules and regulations that apply to new and modified sources. It was previously recommended that one means of accessing regulations might be by those regulations that apply to new and modified sources.

The National Emissions Data Bank contains point and area source information and can be accessed via the National Emissions Data System (NEDS). An inventory of new sources, in which some intereviewees were interested, might be provided as an additional capability under NEDS. The SIPs do not specifically contain new source inventories.

It is recommended that no specific computerization of the new source SIP category be undertaken. It is recommended that, if possible, a means be provided to access new point source information via NEDS. An example might be to enable a NEDS user to access information related to all sources in a given jurisdiction that started after a certain date.

8.5.8 Compliance Schedules

About 60 percent of the interviewees expressed an interest in compliance schedules. Almost all of them indicated that the Compliance Data System (CDS), which is currently under development, should provide sufficient information for their needs. NEDS is another source of compliance information. Several people expressed an interest in more detailed information than they felt would be provided in CDS; however, this level of detail is not available in the SIPs. It is recommended that no computerization of compliance schedules be undertaken

as part of an SIP information system. Instead, it is recommended that CDS be utilized as the primary computerized source of compliance data. If additional detail is needed, means to provide it should be pursued, preferably within the CDS or NEDS systems.

8.5.9 Intergovernmental Cooperation

Interest was primarily related to the intrastate aspects of this category, rather than interstate. Interest was expressed in being able to identify the agency (i.e., state or local) that has the authority for various regulatory authorities. Tables providing this sort of information are available in some, but not all, SIPs. Due to their somewhat static nature, such tables are not prime candidates for computerization; however, they might be compiled and published in document form. No computerization is recommended for this portion of the SIPs.

8.5.10 Emergency Episodes

Interest in this category was comparatively slight. One reason for this is that regional office personnel who are concerned with emergency episodes have most of the required SIP material readily available in printed form. In addition, the frequency of emergency episodes is expected to decrease; ideally, no more will occur after 1975. Thus, the category of emergency episodes is expected to lose importance in the future. Due to the slight amount of interest, it is recommended that no computerization be undertaken for emergency episode SIP-related information.

8.6 COMPUTERIZATION OF GENERAL AREAS

8.6.1 Indexing

As noted before, a majority of those people interviewed (58 percent) expressed an interest in an indexing capability. It has been previously recommended that the computerization of rules and regulations be pursued, and it was also recommended that no indexing of regulations be undertaken. Indexing would help

overcome the diverse nature of the SIPs by providing a means to access all references to one particular topic. Yet the diversity and lack of consistent organization would make the task of indexing the SIPs quite difficult.

Due to the level of interest in this area, it is felt that it should be pursued further. An indexing capability might be implemented as follows: An effort to compile and print indexes could be attempted for a small number of SIPs (e.g., those in one EPA region). This would take the form of printed material, similar to the index of a textbook. After a trial period of use in the state or region and EPA headquarters, it could be determined if the indexing effort should be expanded to include all SIPs and, if so, if such a capability should be computerized. The job of compiling indexes by hand would have to be undertaken as a first step to computerization and, thus, would not be a wasted effort if the decision for computerization was made.

If a computerized indexing capability is developed, it is felt that it should be made available on a rapid job turnaround basis. Rather than wait most of a day or overnight for page references via computer, most users would instead go directly to the printed SIP to find the desired material. A potential problem associated with this approach is in making such a capability available in a timely fashion (i.e., before 1975).

8.6.2 Other Areas

Some interest was shown in a display of AQCR priority level (I, II, or III) by pollutant type by AQCR. A sample of such a display is given in Figure 1 in Appendix A. Those who did not want such a table computerized generally felt it was unnecessary, because the information is contained in the Federal Register or had been compiled within EPA. Others felt that it should be computerized for ready availability throughout EPA, and so its update could be handled centrally.

A summary showing the number of AQCRs in each priority classification by pollutant is given in the First SIP Semi-Annual Report, January 1 to June 30, 1973, page 28. A priority classification of AQCRs by pollutant is provided in The National Air Monitoring Program: Air Quality and Emissions Trends Annual Report, Volume I, EPA 450/1-73-001a, August 1973. Because these references should provide sufficient sources of information, it is recommended that this information not be computerized.

General questions were asked that related to computerization of population data contained in the SIPs, comparison of differing air quality standards within a state, and communications between EPA and the states. Users expressed a preference for Bureau of Census-supplied population data, and it is therefore recommended that SIP-contained population data not be computerized. There was no appreciable interest in comparisons of differing air quality standards within a state. Most people queried felt that EPA standards were of greater significance than state standards. It is, therefore, recommended that this area not be computerized. It has previously been recommended that the basis for an SIP information system be established, and that state/EPA communications be considered part of that basis. It is, therefore, recommended that no separate computerization of letters and communications be undertaken.

8.7 PROTECTION OF DATA

8.7.1 Accessing Data

Interviewees were asked if they felt data contained in an SIP information system should be protected by a password or some other identification procedure before allowing user access. All but one or two people felt that this was not necessary, indicating that no proprietory data was contained in the SIPs. Those who felt that some sort of protection was desirable, mentioned that certain types of emissions data might be considered proprietory. It is not recommended that any SIP emissions data be computerized; therefore, no protection for accessing emissions data is required.

8.7.2 Information System Updating

All interviewees questioned agreed that a potential SIP information system should be protected in some fashion against inadvertant destruction of data. Implicit in this is the need to have the authority to modify data limited to designated individuals.

8.8 QUERY CAPABILITY

8.8.1 Access

Interviewees were asked how they wished to access an SIP information system in terms of computer job submission. Suggested ways were via batch jobs using fixed input data formats, and/or via a set of 5 to 10 input questions that would define the type of report to be produced. The latter method would lend itself readily to interactive terminal job submission. Most interviewees did not express firm opinions regarding these questions, and no conclusive reaction was recorded.

8.8.2 Output

Interviewees were asked if they preferred computer output in some form other than computer printout. Possible alternatives suggested were printer plots and graphics displays via cathode ray tube (CRT). Slightly more than one quarter of the interviewees indicated they would prefer CRT output. Two people indicated that incremental line plots might be useful. Those who expressed an interest in CRT output seemed to associate this type of output with rapid job turnaround, rather than as a distinct output means.

8.8.3 Recommendations

No specific recommendations are made regarding input/output devices and means of job submission on the basis of answers to related survey questions.

It is felt that turnaround requirements dictate, to some degree, the type of I/O devices that should be considered. Due to the large percentage of responses

that are desired within hours, it is felt that some type of rapid turnaround must be provided. Most interviewees felt that a priority system was necessary to meet their requirements.

If a priority system cannot quarantee turnaround of some queries within hours, then it is recommended that an interactive capability be considered. Interactive typewriter terminals could provide users with the capability to receive small amounts of printout directly via the terminal. Larger quantities of output, on which overnight or longer turnaround should be satisfactory, would be provided via the central computer printing facility.

Interactive terminals lend themselves readily to the question-and-answer format of unstructured requests. The latter, in turn, seem to be well-suited for the specification of rules and regulations. The nine parameters by which regulations could be accessed would provide a basis for such questions.

An interactive capability, by which users might display rules and regulations on a CRT and scan the text of the regulations by the execution of keyboard commands, appears to be an attractive alternative to some types of batch processing. An advantage of this type of display is that it eliminates printing large quantities of output, which might be read only once and then discarded. It is possible to have a selective printing capability associated with graphics scanning, so that users can selectively print only the displays which are of interest. It is recommended that, after interactive terminal capabilities regarding rules and regulations are investigated, interactive graphics be investigated further.

APPENDIX A - QUESTIONNAIRE, SURVEY OF EPA USER REQUIREMENTS REGARDING STATE IMPLEMENTATION PLANS

This appendix contains a sample survey questionnaire.

Date of Interview _____

I. Background Information

A. Person being interviewed:

Name: _____

Title: _____

Telephone: ( ) _____ Ext. _____

B. EPA organization represented:

Name: _____

Address: _____

C. Job responsibility of person interviewed and mission or role of his organization (may be obtained prior to interview).

II. Current Uses of NEDS, SAROAD and Other Data Bases

A. Do you or people in your organization use information from NEDS and SAROAD in your current work? (If no, skip to II, B) _____

1. If so, which, or both

   NEDS _____

   SAROAD _____

2. How frequently are they utilized for similar types of requests?

3. How frequently are they utilized for all types of requests?

4. How are the computer runs made, or initiated?

   _____ via the National Air Data Branch

   _____ via the regional office

   _____ made by yourself, or someone from within your immediate organization.

5. How are the computer outputs obtained?

   remote batch _____

   dial up batch _____

   interactive terminal _____

6. What particular reports/data are obtained? _____

   _____

7. Are the means by which the computer outputs are obtained satisfactory? _____

8. Could they be improved by:

   a. Being provided more quickly _____

   b. More readable format _____

   c. Other _____

B. Would NEDS and/or SAROAD have been used if any of the following capabilities had been available?

1. Additional reports?
   a. What type?
   b. How frequently?
2. Existing reports made available more frequently?
   a. Which reports?
   b. How frequently?
3. Existing reports presented in a different format?
   a. Which reports?
   b. What kind of format?

C. Have you used any other data bases? (if no, skip to Section III).

D. Have you used any of the following data bases and, if so, for what purpose?

1. Bureau of the Census _____
2. GSA Property _____
3. Form FPC-67 _____
4. Dun and Bradstreet _____
5. Polk Vehicle Registration _____
6. Federal Facilities Files _____
7. Other _____

III. SIP's - General Questions

The SIP's must include provisions for at least the following nine major categories: legal authority, control strategy, compliance schedules, emergency episodes, surveillance systems, review of new sources, resources, inter-governmental cooperation, and rules and regulations. Prior to asking questions on each of these categories, several general questions are covered.

Each AQCR is graded by EPA as Priority I, II, or III on the basis of the known or estimated levels of the six pollutants presently covered by national standards.

1. Would it be useful to have available survey information related to priorities vs. AQCR for each pollutant type? example (Figure 1):

The SIP's usually contain a section which describes the state in general terms and includes demographic information.

2. Would information related to total population - current and projected - be useful? If so, how often should it be updated?

3. Would information related to population densities - current and projected - be useful? If so, how often should it be updated?

4. Would a comparison of differing air quality standards within a state be useful?

5. Communications between the state and EPA are contained in the volumes which contain the SIP's. This information may range from notification of non-compliance with certain standards, to information regarding forthcoming informal meetings. Should this information be included in the SIP data base?

6. Would an index of the SIP be desirable (e.g. a table of contents with page reference)? If so, would more detail than a simple table of contents be desirable? How detailed?

Figure 1

Priority Level by Pollutant Type by AQCR

AQCR \ Pollutant Type	Part.	SOX	CO	Photo-Chemical Oxidants	HC	NOX
1	I	II	I	II	I	II
2	III	II	III	III	II	II
3						
4						

IV. Legal Authority

1. Are you interested in accessing any information regarding the legal authorities needed to meet EPA requirements? (If no, go to V.)

2. Although the law pertaining to various areas may differ in content, historical information concerning the law's status could be presented in similar fashion for all areas. Would a report of such a historical status (e.g. enacted, repealed, unconstitutional) be desirable? If so, would information related to the responsible organization (e.g. court repealed, agency enacted) be useful?

3. In going beyond law status, is any of the following information useful:
   a. State code/constitution citations? _____
   b. Abstracts of the applicable legislation? _____
   c. Full text of the applicable legislation? _____
   d. Case citations upholding or striking down pertinent legislation? _____. If so, full text or abstracts of the case citations _____.
   e. Information whether a change made the new law more or less restrictive than the old _____.

   Some of this information might be depicted as in Figure 2.

4. What requirements are needed for those legal authorities relating to motor vehicle emissions or land use controls? (list and go to User Interest Form for each item).

5. Given amendments to laws, enactment of new laws, etc., are provisions necessary for updating the legal authority information?

6. Should a given state fail to enact needed authority, are any automatically generated messages or notices needed to identify such a problem?

7. Are there any other items of interest related to legal authority? (If so, list and go to interest form).

Figure 2

State of _____. Legal Authority Summary

Summary of Provisions	Statute Expressly Conferring Specific Power or Regulations Implementing General Conferral of Power
1. Adopt emission standards and limitations and other measures necessary for attainment and maintenance of national standards	23-25-5 (d)
2. etc.	

V. Rules and Regulations

The legal authority discussed earlier usually allows for the promulgation of more specific rules and regulations to implement the objectives of the enabling legislation. The rules may come in the form of actual statutes, e.g. municipal codes, or rules and regulations issued by some state executive department (e.g. health) or a pollution control agency. The SIP rules and regulations, therefore, have a variety of differing formats and content.

1. Are you interested in accessing information regarding rules and regulations? (If no, go on to VI).

2. Would a complete text of a set of rules and regulations be desirable?

3. Would a summary or abstract of the rules and regulations be desirable?

4. Do you need a table of contents of the entire set of rules and regulations of a state/county/city/region?

5. Would it be desirable to know which set of regulations apply to a particular pollutant?

6. Would it be desirable to be able to identify which regulations apply to control strategies, or any other major category in the SIP's?

7. Are you interested in knowing the source or sources of the rules and regulations (i.e. state, EPA)?

   within a state? _____

   within a control region within a state? _____

8. Would it be desirable to know whether the rule or regulation had been modified or repealed? (If no, go on to question 15).

9. Would it be useful to know how the rule changed?

10. Would it be useful to obtain the former rule?

11. Would it be desirable to obtain all rules on a particular subject, e.g. open burning?

12. Would it be desirable to obtain all rules on geographical location/ pollutant combination? e.g. SO_2 emission regulation for a particular state for particular types of plants.

13. Each set of rules and regulations has its own format. Would a standardized format, reorganizing each set without omissions and with ocassional duplications (e.g. the same rule may apply to more than one section in the standardized format) be of interest?

14. Is there any other pertinent information relating to rules and regulations which could be made more easily available to you?

VI. Control Strategies

A control strategy is defined as "a combination of measures designed to achieve the aggregate reduction of emission necessary for attainment and maintenance of a national standard." If a control strategy file were to be developed containing information from all the SIP's, which specific items would interest you? If none, go to question 3 of this section.

1. Are you interested in accessing any information concerning control strategies? (If no, go to VII).

Questions 2 through 9 are primarily concerned with the control of stationary sources.

2. Would a summary table of controlled pollutant vs. source type or process type be of any use? (see Figure 3)
3. Concerning actual control strategies (devices, methods and other measures) for stationary sources, would a comprehensive table of pollutant-source be of any use?
4. Regarding the EPA response to each state on its control strategies, would some type of summary be of interest in terms of full text or abstract?
5. Should baseline emission rate data (i.e. data used in the formulation of control strategies) be incorporated into the SIP data base? If so, would it be of interest to know how this data were obtained (i.e. sampling methods, modeling methods)?
6. Should baseline air quality data (i.e. data used in the formulation of control strategies) be incorporated into the SIP data base?
7. Would a summary of how control strategies were formulated and validated (e.g. use of computer simulation, manual computation, etc.) be of interest?

8. Regarding the method employed in estimating control effectiveness and the results of the estimation, would this type of information in a tabular form be of interest?

9. Would the information concerning the installation and operating costs for applying the controls for stationary sources be of interest?

Questions 10 and 11 are related to mobile sources.

10. For mobile source, primarily automobiles, what type of information would be useful concerning control strategies (e.g. exhaust emission control system, parking restriction, etc.)?

11. Would the costs associated with the mobile source control strategies be of use?

12. Is there other pertinent information concerning control strategies?

Figure 3

Percentage of Control

(Pollutant vs. Source Type)

	SOX	CO	Part.	HC	NOX	Photo-chem. oxidants
Fuel combination	55%					
Industrial process						
Solid waste disposal						

VII. Compliance Schedules

The compliance schedules in individual SIP's vary considerable from generalized statements regarding dates when standards will be met to detailed tables indicating sources, outputs, projected outputs and dates for attaining compliance, etc.

1. Are you interested in accessing any information regarding compliance schedules? (If no, go to VIII).
2. Are you presently using the Compliance Data System (CDS), which is handled by OSI. (If no, G. Nehls describe CDS, go to 4). (If yes, continue to 3).
3. Is there any information contained in the SIP's and not available in your present data system that would be of interest to you? (list and go on to 4).
4. Are provisions for hearings (date, results, summaries, etc.) necessary?
5. Should information be provided which would tell whether the compliance schedules were those submitted by the state, or those enacted by the EPA?
6. Is any other information of interest concerning compliance schedules? (list and go to interest form).

VIII. Emergency Episodes

In heavily polluted areas, consideration must be given to the emergency measures needed when the pollution level threatens to reach or exceed the danger point. Such occurrences are referred to as episodes.

1. Are you interested in accessing any information related to emergency episodes? (If no, go to IX).

2. Some states have submitted contingency plans for Priority I control regions. Would it be useful to know which states have submitted contingency plans? (if no, go to 5). If so, would it be desirable to be able to have available portions of these plans in full text or abstract form? (select and go to interest form).

3. EPA regulations include a suggested model plan which includes a first alert stage, a second warning stage, and a third emergency stage. Would it be useful to be able to obtain episode criteria of this type for the States? (see Figure 5).

4. Some states have developed emergency control programs for point sources (usually those emitting >100 tons/year). Would it be desirable to know if these are available? If so, would it be desirable to obtain more details?

5. Would information be useful which summarizes what control action is to be imposed for a particular stage by source type? (see Figure 6).

6. The contingency plan includes control programs to be required of each stationary source emitting more than 100 tons of pollutants annually. Would it be desirable to be able to abstract portions of these programs? For example, would it be desirable to know which sources will be inspected during emergency episodes?

7. Would a table of emergency source categories, possibly by AQCR, be useful? These are the sources which would be contacted to ensure compliance with emission reduction objectives. They are also the sources which would be inspected during an emergency episode. (see Figure 7).

8. Prohibitions or restrictions of various activities may be imposed. Would any tabulation of these restrictions be useful?

9. Would priorities related to prohibition and restrictions be useful (i.e. who would be controlled first)?

10. Certain source categories may be exempted from control. Would it be useful to know which categories would be exempted?

11. Would information related to the closing of industries be useful?

12. Would information related to which people have responsibility to combat emergency episodes be useful? This might include names, phone numbers, titles, and organization.

13. Should any full text or abstracts from the SIP's related to emergency episodes be available?

14. Are there any other items of interest regarding emergency episodes?

Figure 5

Episode Criteria for State of _____

Stage	Criteria/Action to be Taken
Forecast	Meterology conditions only • Agency prepare for potential episode • Advise Major Sources
Alert	No acute health effects, but preventive action required • Public announcement • Fuel switching • Curtail incineration and burning
Warning	Preliminary Health Hazard • Selective curtailment of industrial activities
Emergency	Dangerous Health Hazard • Major curtailment of all activities in community

Figure 6

Control Action Summary

State or Region for Alert* Stage

	Source of Air Pollution		Control Action
1.	Coal or oil-fired electric power generating facilities	a.	Substantial reduction of fuels having low ash and sulfur content.
		b.	
		c.	
2.	Coal and oil-fired process steam generating facilities	a.	
		b.	
		c.	
3.	etc.		

*Note, this report could also be produced for the other episode stages.

Figure 7

Proposed Emergency Source Categories

Industrial and Steam Electric Power

Food Products

etc.

Commercial Facilities

Construction

etc.

Governmental Facilities

Schools

etc.

Transportation

Autos

etc.

IX. Surveillance Systems

1. Are you interested in accessing information related to surveillance systems, including monitoring stations? (if no, go to X).
2. For a particular monitoring station or group of monitoring stations, would a table such as the one shown in Figure 8 be useful?
3. Would a table as depicted in Figure 9 showing the present air quality monitoring network be useful?
4. Would the same information related to proposed monitoring stations be of use?
5. Would a tabular comparison of the Federal Requirements for the Air Quality Surveillance Network and the State Proposed Air Quality Network be useful? (see example in Figure 10). (If so, note that this information is currently available.)
6. Would the basis for location of existing surveillance networks be of interest? (see Figure 11).
7. Are there any other items of interest regarding surveillance systems?

Figure 8

Pollutant/ Parameter	Monitoring Technique	Sensor	Averaging Time
SOX	Calorimetric	Continuous	Hourly
Part			
CO			
NOX			
Total Oxidants			
Hydrocarbons			
Wind Speed	Anemometer		
Wind Direction	Wind Vane		

FIGURE 9

Station and Number	Location	Start-up Date	Ending Date	Pollution Density			Population Density		
				H	M	L	H	M	L
1				X				X	
2						X			X
3					X		X		
4				X			X		
5						X		X	
etc.									

Figure 10

Pollutant	Minimum Number of Federal Monitoring Sites	Sites in Operation As Of ___	State Proposed Number of Monitoring Sites
Sulphur Dioxide			
Gas bubbler	5		21
continuous	2		4
CO			
_____			
_____			

Figure 11

State or AQCR

Basis for Locating Existing Surveillance Network

Location (City, County)	Station Number	Criteria 1	2	3	4	5	6	7	8	9	10	etc.
_____	1	X		X	X	X		X	X	X	X	
_____	2		X	X		X	X	X			X	
_____	3											
etc.	etc.											

Numerical criteria are explained by a key

1. Center of city location
2. Residential
3. Accessible
4. Industrial
5. Area of projected growth
6. Request from local residents for sampling, etc.

X. Review of New Sources and Modification of Existing Sources

EPA requires that each SIP contain legally enforceable procedures that will enable the state agency to prevent the construction or modification of any stationary source that would interfere with attainment or maintenance of a national standard.

1. Will you be interested in any information related to new sources? (if not go to XI).

2. Would the full text of this portion of the SIP's be useful?

3. Would an abstract be useful?

4. Would information regarding permit systems for new and existing sources be useful? This might include whether a state has such a system and, if so, what the regulations are in full text and/or abstract form. (select and go to interest form).

5. Would information regarding registration fees involved in obtaining permits be of interest?

6. Would any type of inventory of new sources be useful? Such an inventory could be categorized in many ways, e.g.
   a. New sources since a particular date (any interest?).
   b. New sources by SIC (any interest?).
   c. New sources by SCC (any interest?).
   d. New sources by political subdivision (any interest?).
   e. New sources by AQCR (any interest?).
   f. Other (select and go to interest form).

7. Would any other information related to new sources or modified sources be useful?

XI. Resources

Each plan includes a description of the manpower and funds needed to carry out the plan for five years. The description includes current resources plus projections of additional resources needed at one, three, and five-year intervals.

1. Are you interested in accessing any information regarding resources? (if no, go to XII).

2. Would a table of salary estimates for staff agency operation be useful? (see Figure 12). This information would be that which was provided in the SIP (i.e. not necessarily current).

3. Would any sort of table of physical resources be useful? For example, state or county vs. the type of resources with the quantity of each resource available in the table. Types of resources might include testing equipment, vehicles equipped with cameras for photographing emissions, etc.

4. Would any other information related to resources be useful?

Figure 12

Salary Estimates for _____

Title	Grade	Salary Range
Chief, Division of Air Pollution	99	_____ to _____
etc.		

XII. Intergovernmental Cooperation

Each SIP must provide for the exchange of all necessary information among the responsible agencies in each control region whose boundaries lie in more than one state. Provisions regarding INTRA state cooperation are also included.

1. Are you interested in accessing any information regarding intergovernmental cooperation? If no, go to Section XIII.

2. Do you presently use any data base which pertains to intergovernmental cooperation (if no, go to question 4)?

3. Is all the information you desire which is contained in the SIP's included in your data base? (if yes, go to Section XII).

4. Should the cooperation and dissemination of information be extended to INTRA-state communication plans as well?

5. Would it be of interest to allow for exchange of information between

   a) adjacent states and/or regions
   b) similar "priority" regions
   c) similar "control strategy" regions
   d) similar "legal authority" regions?

   (select and go to interest form).

6. Are any functions under this category appropriate for "automatic" dissemination of information via the SIP system, e.g. when a change is made to data in a priority II region for SOX, should all other similar regions be notified? (if yes, solicit comments on the other questionnaire).

7. Would an abstract of this portion of the SIP's be useful?

8. Would any other information regarding interstate cooperation be useful?

XIII. Additional Comments

Are there any additional comments you wish to make?

APPENDIX B - USER INTEREST FORM

This appendix contains a sample User Interest Form questionnaire used in this survey.

USER INTEREST FORM

1. Name

2. Question identification

3. Please indicate the time requirement and the order of priority of those capabilities you wish to be made available.

4. Should this information be categorized by:

   _____ EPA region

   _____ State

   _____ AQCR

   _____ Other

5. Would the kind of information you want be preferred in some form other than computer printout?

   If so, what kind? (i.e., printer plots, graphics displays, published reports).

6. If submitting a computer job to retrieve this information, what turnaround requirements do you anticipate?

   _____ need it within hours

   _____ need it within a day

   _____ need it within 2 or 3 days

   _____ need it within a week

   _____ over a week is acceptable

7. How often do you anticipate you would request this information?

8. Would your needs be urgent enough so that a priority system (some means to guarantee you output within a certain time) would be desirable?

9. How frequently do you feel that this portion of the SIP data file should be updated? That is, what turnaround do you want from the time new data is submitted until it is on the data file available for access?

10. Who should perform the updating and what procedure should be employed (e.g., centralized or regional)?

11. Do you think that this information or data should be protected, say by some identification procedure for updating and/or accessing?

12. Should the method of data access be interactive, for example:

    Q. What portion of the SIP is of interest?

    A. a. Legal authority
       b. Control strategies
       c. Compliance schedules, etc.

    Q. What is the geographical area of applicability?

    A. a. State
       b. AQCR
       c. Area (city or county)

    Q. What is the category of interest?

    A. Assume that "control strategies" were selected for question 1, a numerical key might be entered which would define the type of report desired, such as:

       a. Detailed report of control strategies for each source
       b. Operating costs associated with control strategies
       c. etc.

Q. What is the sub-category of interest?

A. This would further define the report to be produced, and might specify such things as year, pollutant, etc.

and/or batch mode with standard input specification?

13. Any other comments you wish to make?

APPENDIX C - LIST OF PEOPLE SURVEYED

C.1 EPA, WASHINGTON

L. Bockh	Office of Program and Management Operations
C. Edlund	Division of Stationary Source Enforcement
J. Montgomery	Office of Program and Management Operations
K. Mullen	Planning and Review Staff, Office of Monitoring Systems
G. Parker	Assistant to the Chief of the Enforcement, Surveillance, and Investigation Branch, Division of Stationary Source Enforcement
E. Peckin	Office of Planning and Evaluation
R. Penna	Mobile Source Enforcement Division
P. Quarles	Enforcement Proceedings Branch, Division of Stationary Source Enforcement
E. Reich, Esq.	Chief, Enforcement Proceedings Branch, Division of Stationary Source Enforcement
W. Sayers	Director of Planning and Review Staff, Office of Monitoring Systems
R. Smith	Office of Program and Management Operations
J. Steyer	Office of Planning and Management, Economic Analysis Division
D. Tuttle	Office of Policy Analysis and Ocean Disposal

C.2 EPA, DURHAM

K. Berry	Chief, Regulations and Guidelines Section, Standards Implementation Branch

M. Berry	Pollutant Strategies Branch
J. Bosch	National Air Data Branch
R. Coleman	Pollutant Strategies Branch
J. Crenshaw	Pollutant Strategies Branch
D. deRoeck	Evaluation and Support Branch
N. Dunfee	Chief, Evaluation and Support Branch
D. Dunbar	Chief, Analysis and Reports Section, Standards Implementation Branch
N. Edmisten	Chief, Standards Implementation Branch
Dr. J. Hammerle	Chief, National Air Data Branch
V. Henderson	Monitoring and Reports Branch
A. Hoffman	Chief, Trends Analysis Section, Monitoring and Reports Branch
M. Jones	Chief, Strategies Analysis Section, Pollutant Strategies Branch
C. Mears	Source Receptor Analysis Branch
J. O'Connor	Chief, Cost Analysis Branch
T. Swearington	Pollutant Strategies Branch
G. Walsh	Assistant to the Director of the Emission Standards and Engineering Division
A. Wehe	University of Louisiana
C. Whitmore	Evaluation and Support Branch

C.3 REGIONAL OFFICES

C.3.1 Region I

N. Beloin	Acting Chief, Technical Assistance and Planning Section, Air Branch
T. Devine	Chief, Technical Operations Section
L. Gitto	Chief, Systems Analysis Branch

M. Knudson	Chief, Surveillance Branch
A. Leriche	Inventory and Monitoring Section, Surveillance Branch
W. Serovy	Systems Analysis Branch
M. Storlazzi	Chief, Air Branch
W. Walsh	Chief, Inventory and Monitoring Section, Surveillance Branch
D. White	Inventory and Monitoring Section, Surveillance Branch

C.3.2 Region IV

L. Bittner	Chief, Legal Support Branch
M. DeBusschere	Trends Monitoring Report Coordinator
T. Gibbs	Chief, Air Programs Branch
G. Glahn	Chief, Agencies Support and Evaluation Section
J. Riley	Chief, Emergency Episode Control Center
J. Wilburn	Chief, Air Enforcement Branch

C.3.3 Region V

B. Bolka	Air Data Analysis Section, Air Surveillance Branch
D. Maddox	Chief, Programs Support Branch
V. Yamada	Chief, Control Agency Evaluation Section, Programs Support Branch

C.3.4 Region IX

R. Cummins	Chief, Air Section, Surveillance Branch
P. Roncetti	Arizona and Nevada Planning Section, Planning Branch
M. Stenburg	Chief, Surveillance Branch

T. Stumph	Chief, Compliance Branch
P. Wondra	Arizona and Nevada Planning Section, Planning Branch

C.5 NERC, LAS VEGAS

E. Schuck	Chief, Monitoring Systems Analysis Office
R. N. Snelling	Chief, Data Acquisition and Analysis Branch

APPENDIX D - TABULATION OF RESULTS

The tables in this appendix present the statistical information gathered for use in this study.

Table D-1. Interest and Priority for SIP Categories and Indexing for Durham Interviewees

CATEGORY	INTERVIEWEE																			FIRST	SECOND	THIRD	WTED TOTAL	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19					
LEGAL AUTHORITY			2	•		1											•		•	1	1	0	5	4
RULES & REGULATIONS			1		1			1	1	1		1	1	1		1	1	1	1	12	0	0	36	1
CONTROL STRATEGIES	•	•	•	1	3				2	2	1	2	2	2		3		3	•	2	5	3	19	2
COMPLIANCE SCHEDULE	•		•	2	•			3	•	•				3	•	•	•			0	1	2	4	5
EMERGENCY EPISODES					•	2											•			0	1	0	2	9
SURVEILLANCE	1	•			2				•	•	2		3		1	2		•	•	2	3	1	13	3
NEW SOURCES				•				2					•	•				2	•	0	2	0	4	5
RESOURCES	•				•	•	1								•		•			1	0	0	3	7
INTERGOVERNMENTAL COOPERATION							2		•	•							•		•	0	1	0	2	8
INDEXING	•	•		•	•	•	•		•		•	•		•	•		•	•						

LEGEND: BLANK = NO INTEREST
• = INTEREST BUT NO PRIORITY ASSIGNED
1 = INTEREST AND FIRST PRIORITY
2 = INTEREST AND SECOND PRIORITY
3 = INTEREST AND THIRD PRIORITY

Table D-2. Interest and Priority for SIP Categories and Indexing for Washington and Las Vegas NERC Interviewees

CATEGORY	INTERVIEWEE												FIRST	SECOND	THIRD	WTED. TOTAL	RANK
	1	2	3	4	5	6	7	8	9	10	11	12					
LEGAL AUTHORITY				3	2							•	0	1	1	3	6
RULES & REGULATIONS	1	1	1	2	1	•		1	1	•	•	3	6	1	1	21	1
CONTROL STRATEGIES		3	3	1		1	1	2	2			2	3	3	2	17	2
COMPLIANCE SCHEDULE	•	•	•	•	•				•	•	•	•	0	0	0	0	8
EMERGENCY EPISODES					•	3							0	0	1	1	7
SURVEILLANCE		•	•			•	•			1	1	1	3	0	0	9	3
NEW SOURCES		2	2				•						0	2	0	4	4
RESOURCES				•		2	2			•	•	•	0	2	0	4	4
INTERGOVERNMENTAL COOPERATION	•			•	•			•					0	0	0	0	8
INDEXING	•	•	•	•	•			•	•	•	•	•					

LEGEND:
- BLANK = NO INTEREST
- • = INTEREST BUT NO PRIORITY ASSIGNED
- 1 = INTEREST AND FIRST PRIORITY
- 2 = INTEREST AND SECOND PRIORITY
- 3 = INTEREST AND THIRD PRIORITY

Table D-3. Interest and Priority for SIP Categories and Indexing for Regional Office Interviewees

CATEGORY	INTERVIEWEE																					FIRST	SECOND	THIRD	WTED TOTAL	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21					
LEGAL AUTHORITY		•				•	2		•	1								•	•			1	1	0	5	4
RULES & REGULATIONS	2	3	1	•		3	1	•	1	2	1	1	1	1	1			•	•		•	8	2	2	30	1
CONTROL STRATEGIES				1				1	2			2	3	2	2							2	4	1	15	2
COMPLIANCE SCHEDULE	1			•		•			•	•				•	•	•		•	•	•		1	0	0	3	6
EMERGENCY EPISODES		•			1					•		•	•									1	0	0	3	6
SURVEILLANCE		1		•	2	•				•												1	1	0	5	4
NEW SOURCES									•	•				•	•							0	0	0	0	9
RESOURCES		2				1		•	3	•		3	2						•			1	2	2	9	3
INTERGOVERNMENTAL COOPERATION		•				2				•		•	•	•	•							0	1	0	2	8
INDEXING	•					•		•	•	•								•		•						

LEGEND: BLANK = NO INTEREST
• = INTEREST BUT NO PRIORITY ASSIGNED
1 = INTEREST AND FIRST PRIORITY
2 = INTEREST AND SECOND PRIORITY
3 = INTEREST AND THIRD PRIORITY

Table D-4. Interest in Subcategories Under Rules and Regulations for Durham Interviewees

SUBCATEGORY	INTERVIEWEE																			TOTAL	% INTERVIEWED	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
GENERAL INTEREST			•		•			•	•	•		•	•	•		•	•	•	•	12	63		
INDEXING					•			•		•			•				•	•		6	31	50	2
HISTORICAL			•		•			•												3	16	25	3
ABSTRACT					•			•	•	•		•	•	•		•	•	•	•	11	58	92	1
FULL TEXT			•		•									•						3	16	25	3

Table D-5. Interest in Subcategories Under Rules and Regulations for Washington and Las Vegas NERC Interviewees

SUBCATEGORY	INTERVIEWEE												TOTAL	% INTERVIEWEE	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12				
GENERAL INTEREST	•	•	•	•	•	•		•	•	•	•	•	11	92		
INDEXING				•	•							•	3	25	27	3
HISTORICAL	•	•	•										3	25	27	3
ABSTRACT	•	•	•						•	•	•		6	50	54	1
FULL TEXT	•		•	•	•					•			5	43	46	2

Table D-6. Interest in Subcategories Under Rules and Regulations for Regional Office Interviewees

SUBCATEGORY	INTERVIEWEE																					TOTAL	% INTERVIEWED	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
GENERAL INTEREST	•	•	•	•		•	•	•	•	•	•	•	•	•	•			•	•		•	17			
INDEXING	•		•	•			•	•	•													6	29	40	3
HISTORICAL	•		•						•	•	•			•	•							7	33	47	2
ABSTRACT	•		•			•		•	•		•			•	•			•			•	10	48	59	1
FULL TEXT						•	•					•	•					•			•	6	29	40	3

Table D-7. Interest in Subcategories Under Control Strategies for Durham Interviewees

SUBCATEGORY	INTERVIEWEE																			TOTAL	% INTERVIEWED	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				
GENERAL INTEREST	•	•	•	•	•				•	•	•	•	•	•		•		•	•	14	73		
STATIONARY BASELINE EMISSIONS		•			•				•	•			•			•				6	32	43	3
AIR QUALITY		•			•				•	•	•		•			•		•		8	42	57	1
MODELS USED			•		•				•	•				•		•		•		7	37	50	2
COSTS		•	•	•								•		•				•		6	32	43	3
MOBILE CONTROL MEASURES		•	•		•								•	•						5	26	36	5
ASSOCIATED COSTS		•												•						2	11	14	6

Table D-8. Interest in Subcategories Under Control Strategies for Washington and Las Vegas NERC Interviewees

SUBCATEGORY	INTERVIEWEE												TOTAL	% INTERVIEWED	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12				
GENERAL INTEREST		•	•	•		•	•	•	•			•	8	67		
STATIONARY BASELINE EMISSIONS		•	•	•		•	•					•	6	50	75	3
AIR QUALITY		•	•	•		•	•	•	•			•	8	67	100	1
MODELS USED		•	•	•		•	•	•	•			•	8	67	100	1
COSTS		•	•										2	17	25	5
MOBILE CONTROL MEASURES		•	•	•		•	•					•	6	50	75	3
ASSOCIATED COSTS		•	•										2	17	25	5

Table D-9. Interest in Subcategories Under Control Strategies for Regional Office Interviewees

SUBCATEGORY	INTERVIEWEE																				TOTAL	% INTERVIEWED	% INTERESTED	RANK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
GENERAL INTEREST				•				•	•			•	•	•	•							7	33		
STATIONARY BASELINE EMISSIONS				•				•				•		•	•							5	24	71	1
AIR QUALITY				•				•				•		•	•							5	24	71	1
MODELS USED				•				•				•		•	•							5	24	71	1
COST												•										1	4	14	5
MOBILE CONTROL MEASURES								•				•		•	•							4	19	57	4
ASSOCIATED COSTS																						0	0	0	6

Table D-10. Job Turnaround Requirements, CRT Interest, and Responsibility for SIP Data Base Update for Durham Interviewees

SUBCATEGORY	INTERVIEWEE																			TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
TURNAROUND																				
WITHIN HOURS, OR ASAP	•	•				•							•				•			5
1 DAY				•	•		•		•		•					•		•		7
2-3 DAYS												•		•						2
1 WEEK										•										1
OVER A WEEK								•												1
CRT INTEREST	•	•							•	•			•		•		•			7
SIP DATA BASE UPDATE*	C	C	C			C							C	C	C	C	C	C		10C
				R	R		R		R	R	R	R								7R

*C = CENTRALIZED
R = REGIONAL

Table D-11. Job Turnaround Requirements, CRT Interest, and Responsibility for SIP Data Base Update for Washington and Las Vegas NERC Interviewees

SUBCATEGORY	INTERVIEWEE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
TURNAROUND WITHIN HOURS, ASAP					•								1
1 DAY	•					•	•						3
2-3 DAYS		•											1
1 WEEK			•					•	•	•		•	5
OVER A WEEK													0
CRT INTEREST	•											•	2
SIP DATA BASE UPDATE*	C	C	C			C	C	C	C			C	8C
													0R

*C = CENTRALIZED
R = REGIONAL

Table D-12. Job Turnaround Requirements, CRT Interest, and Responsibility for SIP Data Base Update for Regional Office Interviewees

SUBCATEGORY	INTERVIEWEE																					TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
TURNAROUND																						
WITHIN HOURS, ASAP					•																	1
1 DAY						•		•	•	•				•								5
2-3 DAYS		•	•								•		•									4
1 WEEK				•																		1
OVER A WEEK																						0
CRT INTEREST		•	•		•					•				•								5
SIP DATA BASE UPDATE*																						
		R	R			R			R	R	R		R	R		R						0C
																						9R

*C = CENTRALIZED
R = REGIONAL

Table D-13. Estimated Frequency of Use and Extent of Data for Durham Interviewees

ITEM	INTERVIEWEE																			TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
ESTIMATED FREQUENCY OF USE																				
DAILY							•		•	•										3
WEEKLY				•	•						•					•	•	•		6
MONTHLY		•						•					•	•					•	5
SEMIANNUALLY						•						•								2
ANNUALLY												•								1
EXTENT OF DATA																				
EPA REGION							•									•		•		3
STATE	•	•	•			•	•		•	•			•	•	•		•	•		12
AQCR	•	•	•	•	•	•			•	•	•	•	•	•	•			•		14
LOCAL				•												•				2

Table D-14. Estimated Frequency of Use and Extent of Data for Washington and Las Vegas NERC Interviewees

ITEM	INTERVIEWEE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
ESTIMATED FREQUENCY OF USE													
DAILY OR MORE FREQUENTLY	•			•	•								3
WEEKLY		•	•									•	3
MONTHLY						•	•	•	•				4
SEMIANNUALLY													0
ANNUALLY										•	•		2
EXTENT OF DATA													
EPA REGION		•								•			2
STATE	•	•	•		•			•		•			6
AQCR	•	•	•		•	•	•	•		•	•		9
LOCAL			•					•					2

Table D-15. Estimated Frequency of Use and Extent of Data for Regional Office Interviewees

ITEM	INTERVIEWEE																					TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
ESTIMATED FREQUENCY OF USE																						
DAILY		•								•												2
WEEKLY					•	•	•	•				•	•									6
MONTHLY			•								•			•	•							4
SEMIANNUALLY																						0
ANNUALLY																						0
EXTENT OF DATA																						
EPA REGION																						0
STATE		•	•	•	•	•		•	•	•				•	•							10
AQCR		•	•	•	•	•		•	•				•	•	•							10
LOCAL	•	•	•			•		•		•			•									7

Table D-16. Frequency of Update of Data Base for Durham Interviewees

FREQUENCY OF UPDATE	INTERVIEWEE																			TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
AS SOON AS NEW INFORMATION BECOMES AVAILABLE				•		•							•					•		4
UPON PUBLISHING OF A CHANGE IN THE FEDERAL REGISTER			•		•				•	•	•			•	•[A]		•			8
WHENEVER THE SIP IS REVISED		•																		1
MONTHLY																				0
QUARTERLY							•								•[B]					2
SEMIANNUALLY																				0
ANNUALLY												•								1

A – REGULATIONS ONLY

B – EVERYTHING OTHER THAN REGULATIONS

Table D-17. Frequency of Update of Data Base for Washington and Las Vegas NERC Interviewees

FREQUENCY OF UPDATE	INTERVIEWEE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
AS SOON AS NEW INFORMATION BECOMES AVAILABLE				•	•	•			•				4
UPON PUBLISHING OF A CHANGE IN THE FEDERAL REGISTER			•										1
WHENEVER THE SIP IS REVISED	•						•	•					3
MONTHLY		•											1
QUARTERLY													0
SEMIANNUALLY													0
ANNUALLY												•	1

Table D-18. Frequency of Update of Data Base for Regional Office Interviewees

FREQUENCY OF UPDATE	INTERVIEWEE																					TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
AS SOON AS NEW INFORMATION BECOMES AVAILABLE																						0
UPON PUBLISHING OF A CHANGE IN THE FEDERAL REGISTER							•															1
WHENEVER THE SIP IS REVISED												•	•									0
MONTHLY														•	•							2
QUARTERLY		•	•			•					•											2
SEMIANNUALLY																						4
ANNUALLY																						0

Table D-19. Use of SAROAD and NEDS

LOCATION	INTERVIEWEE																					TOTAL USING	% USING
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
SAROAD																							
DURHAM		•	•		•	•	X	•	•	•	•		•	•	•	•	•	X				13	68
WASHINGTON & LAS VEGAS	•		X		X		X		X	X		•										2	17
REGIONS	X	•	•		X	X		•			•	•		•		•						7	33
NEDS																							
DURHAM			•	•		•	X	•	•	•	X	•	•	•	•			X				10	53
WASHINGTON & LAS VEGAS			X	•	X		X	•	•	X		•										4	33
REGIONS	•	•	•		X	X		•			•	•	•	•		•						9	43

• – INDICATES INTERVIEWEE USES THE DATA BASE
X – INDICATES INTERVIEWEE DOES NOT USE THE DATA BASE
BLANK – INDICATES NO RESPONSE, PROBABLE NO USE

Table D-20. Use of Other Data Bases by Durham Interviewees

DATA BASE	INTERVIEWEE																		TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
BUREAU OF CENSUS		•	•		•		•	•	•	•	•		•	•						10
GSA																				0
FPC 67			•	•					•		•			•						5
DUN & BRADSTREET											•									1
POLK							•													1
FFF									•											1
BUREAU OF MINES																				0
DEPARTMENT OF THE INTERIOR			•																	1
NOAA			•																	1
BUREAU OF ECONOMIC AFFAIRS											•									1
DEPARTMENT OF AGRICULTURE													•							1

Table D-21. Use of Other Data Bases by Washington and Las Vegas NERC Interviewees

DATA BASE	INTERVIEWEE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
BUREAU OF CENSUS	•			•				•					3
GSA				•									1
FPC 67	•	•	•		•			•	•				6
DUN & BRADSTREET				•	•			•	•				4
POLK													0
FFF													0
BUREAU OF MINES			•										1
DEPARTMENT OF THE INTERIOR													0
NOAA													0
BUREAU OF ECONOMIC AFFAIRS													0
DEPARTMENT OF AGRICULTURE													0

Table D-21. Use of Other Data Bases by Washington and Las Vegas NERC Interviewees

DATA BASE	INTERVIEWEE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
BUREAU OF CENSUS	•			•				•					3
GSA				•									1
FPC 67	•	•	•		•			•	•				6
DUN & BRADSTREET				•	•			•	•				4
POLK													0
FFF													0
BUREAU OF MINES			•										1
DEPARTMENT OF THE INTERIOR													0
NOAA													0
BUREAU OF ECONOMIC AFFAIRS													0
DEPARTMENT OF AGRICULTURE													0

Table D-22. Use of Other Data Bases by Regional Office Interviewees

DATA BASE	INTERVIEWEE																					TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
BUREAU OF CENSUS			•		•	•		•		•						•						6
GSA																						0
FPC 67								•								•						2
DUN & BRADSTREET																						0
POLK			•																			1
FFF																						0
BUREAU OF MINES								•														1
DEPARTMENT OF THE INTERIOR																						0
NOAA																						0
BUREAU OF ECONOMIC AFFAIRS																						0
DEPARTMENT OF AGRICULTURE																						0

APPENDIX E - INFORMATION PROVIDED BY INTERVIEWEES

This appendix contains sample tables pertinent to this study that were provided by various interviewees. They are presented here not so much for their specific contents, but rather as examples of ways in which information contained in various implementation plans are documented.

E.1 SUMMARY OF NORTH CAROLINA AIR POLLUTION CONTROL REGULATIONS

NOTE: All existing sources of emissions shall comply with applicable regulations and standards at the earliest possible date with all sources being in compliance within 3 years from the approval of the State Implementation Plan by the Federal Government. All new sources shall be in compliance prior to commencing operation.

See Table E-1.

E.1.1 Sulfur Compound Emissions

1. Fuel Combustion (effective 7/1/71) (constructed after 7/1/71)

   a. New Sources - limited to 1.6 lbs SO_2/mm Btu input

   b. Existing Sources - limited to 2.3 lbs SO_2/mm Btu input

      By 7/1/80, existing sources shall be limited to 1.6 lbs SO_2/mm Btu input

2. Sulfuric Acid Plants (effective 7/1/71)

   SO_2 limited to 27 lbs/ton of acid produced

   Acid mist limited to 0.5 lbs/ton of acid produced

3. Lightweight Aggregate (effective 7/1/71)

   All stacks serving kilns or dryers shall be equipped with control devices capable of controlling SO_2 emissions to not more than 1.6 lbs/mm Btu input.

Table E-1. Miscellaneous Industrial Processes Allowable Rate of Emission Based on Actual Process Weight Rate

PROCESS WEIGHT RATE		RATE OF EMISSION	PROCESS WEIGHT RATE		RATE OF EMISSION
LB/HR	TON/HR	LB/HR	LB/HR	TONS/HR	LB/HR
100	0.05	0.551	16,000	8	16.5
200	0.10	0.877	18,000	9	17.5
400	0.20	1.40	20,000	10	19.2
600	0.30	1.83	30,000	15	25.2
800	0.40	2.22	40,000	20	30.5
1,000	0.50	2.58	50,000	25	35.4
1,500	0.75	3.38	60,000	30	40.0
2,000	1.00	4.10	70,000	35	41.3
2,500	1.25	4.76	80,000	40	42.5
3,000	1.50	5.38	90,000	45	43.6
3,500	1.75	5.96	100,000	50	44.6
4,000	2.00	6.52	120,000	60	46.3
5,000	2.50	7.58	140,000	70	47.8
6,000	3.00	8.56	160,000	80	49.0
7,000	3.50	9.49	200,000	100	51.2
8,000	4.00	10.4	1,000,000	500	69.0
9,000	4.50	11.2	2,000,000	1,000	77.6
10,000	5.00	12.0	6,000,000	3,000	92.7
12,000	6.00	13.6			

INTERPOLATION OF THE DATA IN THIS TABLE FOR PROCESS WEIGHT RATES UP TO 60,000 LB/HR SHALL BE ACCOMPLISHED BY USE OF THE EQUATION $E = 4.10\,P^{0.67}$, AND INTERPOLATION AND EXTRAPOLATION OF THE DATA FOR PROCESS WEIGHT RATES IN EXCESS OF 60,000 LB/HR SHALL BE ACCOMPLISHED BY USE OF THE EQUATION:

$$E = (55.0\,P^{0.11}) - 40$$

WHERE E = RATE OF EMISSION IN LB/HR AND
P – PROCESS WEIGHT RATE IN TONS/HR.

E.1.2 Nitrogen Oxide Emissions

1. Fuel Burning Equipment of capacity ≥ 250 mm Btu/hr input are limited by the following: (effective 7/1/72)

	Maximum Allowable NO_2 Emissions lbs/mm Btu
Oil or gas-fired boilers	0.6
Coal-fired boilers	1.3

2. Nitric Acid Plants (effective 7/1/72)

   NO_2 limited to 5.8 lbs/ton of acid produced

3. Sulfuric Acid Plants utilizing the chamber process (effective 7/1/72)

   NO_2 limited to 5.8 lbs/ton of acid produced

E.2 SURVEY OF REQUIREMENTS FOR COAL-BURNING EQUIPMENT

Table E-2 is part of a larger table that lists the 1975 SO_X requirements for coal-burning equipment for each state. Table E-2 is presented to show the format and the type of information represented.

Table E-2. 1975 SO_X Requirements for Coal-Burning Equipment, by AQCR

STATE	AQCR	OLD AQCR NO	UTILITIES (EXISTING)	UTILITIES (NEW)	NON UTILITY
*1. ALABAMA	1. ALA. & TOMB R.	182	1.5 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.5 LBS $SO_2/10^6$ BTU
	2. COLUMBUS, PHOENIX	59	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
	3. E. ALA.	181	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
	4. BIRMINGHAM	29	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
	5. MOBILE, S. MISS., NW FLA.	68	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
	6. SE ALA.	183	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
	7. TENN R. CUMBER.	72	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT	1.2 LBS $SO_2/10^6$ BTU HEAT INPUT (NSPS)	1.2 LBS $SO_2/10^6$ BTU
ALASKA	8. 6TH INLET		500 PPM SO_2	500 PPM SO_2	500 PPM SO_2
	9. NORTHERN		500 PPM SO_2	500 PPM SO_2	500 PPM SO_2
	10. S. CENT.		500 PPM SO_2	500 PPM SO_2	500 PPM SO_2
	11. SE		500 PPM SO_2	500 PPM SO_2	500 PPM SO_2
*2. ARIZONA	12. ARIZ.-N. MEX.	82	1.0 LBS $SO_2/10^6$ BTU	0.8 LBS $SO_2/10^6$ BTU	NO EMISSION STANDARD
	13. CLARK, MOJAVE	47	1.0 LBS $SO_2/10^6$ BTU	0.8 LBS $SO_2/10^6$ BTU	NO EMISSION STANDARD
	*14. 4 CORNERS	89	1.0 LBS $SO_2/10^6$ BTU	0.8 LBS $SO_2/10^6$ BTU	NO EMISSION STANDARD
	15. PHOENIX, TUCSON	25	1.0 LBS $SO_2/10^6$ BTU	0.8 LBS $SO_2/10^6$ BTU	NO EMISSION STANDARD
ARKANSAS	16. CENT. ARK.	124	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	17. FT. SMITH	84	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	18. MEMPHIS	34	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	19. MONROE, EL PRODO	78	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	20. NE ARK.	125	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	21. NW ARK.	126	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
	22. SHREVEPT., TEXOLA	80	NO STANDARD FOR EMISSIONS	1.2 LBS $SO_2/10^6$ BTU (NSPS)	NO STANDARD FOR EMISSIONS
*3. CALIFORNIA	23. GREAT BASIN VALY.	145	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	24. LOS ANG. L. BEA.	6	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	25. N. CENT. COAST	146	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	26. N. COAST	147	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	27. NE PLATEAU	148	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	28. SACRAM. U.	149	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	29. SAN DIEGO	150	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	30. SAN FRAN. BAY	10	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	31. SAN JOAN U.	151	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	32. S. CENT. COAST	152	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL
	33. SE DESERT	153	0.5% S. COAL	0.5% S. COAL[2]	0.5% S. COAL

REMARKS

1. ALABAMA: Current 1.2 lbs $SO_2/10^6$ Btu applicable only in the following counties, with 1.5 lbs $SO_2/10^6$ Btu standard applicable in other counties:

   AQCR #2: Autauga, Lee, Montgomery, Pike, Russell Cos.

   AQCR #3: Calhoun, Etowah, Talladega Cos.

   AQCR #4: Jefferson, St. Clair, Shelby, Tuscalloosa, Walker Cos.

   AQCR #5: Mobile County

   AQCR #6: Coffee, Convington, Dale, Houston Cos.

   AQCR #7: Colbert, Cullman, Jackson, Lauderdale, Madison, Morgan Cos.

   Revisions in current SIP regulations are being made, with the following regulations expected:

   FOR ALL PRIORITY I REGIONS (AQCR'S #5 and #7):
   1.6 lbs $SO_2/10^6$ Btu

   FOR ALL OTHER REGIONS:
   4.0 lbs $SO_2/10^6$ Btu

2. ARIZONA: In the Four Corners AQCR (No. 14), the following standard was promulgated for large-sized power plants:

$$E = 5.7 \times 10^3 \frac{S}{H}$$

where E = allowable SO_2 emissions
S = sulfur content of fuel by weight
H = heat content in Btu's 1 lb

In no case shall E exceed .9 lbs $SO_2/10^6$ Btu, or if E .16 lbs $SO_2/10^6$ lbs the formula shall not apply. Stated standard of 1.0 lbs $SO_2/10^6$ Btu applicable only to steam generating sources of greater than 500,000 Btu's 1 lb.

3. CALIFORNIA: Regulations are different in each of 57 counties. The 0.5% sulfur coal requirement is typical of most county regulations.

E.3 SIP APC REGULATIONS APPLICABLE TO GIVEN SOURCE COMPLIANCE SCHEDULE TYPES

Table E-3 lists these SIP APC regulations for several Southern states. It is another sample of how rules and regulations can be presented in tabular form.

Table E-3. SIP APC Regulations Applicable to Given Source Compliance Schedule Types

SOURCE TYPE	CODE NUMBER	ALABAMA	FLORIDA	GEORGIA	KENTUCKY	MISSISSIPPI	N CAROLINA	S CAROLINA	TENNESSEE
COMPLIANCE DATES REGULATION APPLICABLE	99	CH 19 3	CH 17 2 03(2)		AP1 11		II 6 5	R4A	
I FUEL COMBUSTION									
PART	01	CH 4 3	17 2 04(6)(e)2	270 5 24 02(2)(m) 270 5 24 02(2)(d)	AP3 2	APC S 1 3 4	IV 1 10	S2A I	VI 2A***
SO_2	02	CH 5 1	17 2 04(6)(e)2	270 5 24 02(2)(q)	AP4 1	APC S 1 4 1	IV 2 40	S2A II	VI 4B(1)
NO_x	03		17 2 04(6)(e)2		AP7 1		IV 2 70 IV 2 71		
PART & SO_2	04								
PART & NO_x	05								
SO_2 & NO_x	06								
ALL	07								
II INCINERATION									
PART	08	CH 3 2	17 2 04(6)(a)	270 5 24 02(2)(c) 270 5 24 02(2)(m)	AP3 1	APC S 1 3 8	IV 1 30	S4A I	VI 2C
III PROCESS INDUSTRIES									
ALPHALT PART	09	CH 4 4	17 2 04(2)	270 5 24 02(2)(k)	AP3 3(3)	APC S 1 3 6	IV 1 40	S5A VII(a)	VII 2 VII 4
CONICAL BURNERS PART	10	CH 4 4	17 2 04(2)	270 5 24 02(2)(m) 270 5 24 02(2)(l)	AP3 1(2)	APC S 1 3 6	IV 2 30	S5A VII	VI 2D
COTTON GINS PART	11	CH 4 6	17 2 04(2)	270 5 24 02(2)(m) 270 5 24 02(2)(q)	AP3 3(3)	APC S 1 3 6	IV 2 30	S5A V	VII 2 VII 4
FERTILIZERS PART	12		17 2 04(2)	270 5 24 02(2)(m) 270 5 24 02(2)(r)	AP3 3(3)	APC S 1 3 6	IV 1 50	S5A VII	VII 2 VII 4
FOUNDRIES									
PART	13	CH 4 5	17 2 04(2)	270 5 24 02(2)(o)	AP3 3(3)	APC S 1 3 6	IV 2 20 IV 2 30	S5A VII	VII 98
CO	14	CH 7			AP6 2				
PART & CO	15								
KRAFT PULP PAPER									
PART	16	CH 4 4	17 2 04(6)(d)	270 5 24 02(2)(e) 270 5 24 02(2)(m)	AP3 3(3)	APC S 1 3 6(b)	IV 1 20 IV 1 00	S5A II	VII 2 VII 4
SO_2	17	*		270 5 24 02(2)(q)	AP4 2	APC S 1 4 2			VII 8B(1)
PART + SO_2	18								
MINERAL PROCESSING									
PART	19*	CH 4 4	17 2 04(2)	270 5 24 02(2)(p)	AP3 3(3)	APC S 1 3 6	IV 1 70* IV 1 80 IV 1 90	S5A III	VII 2 VII 4
NITRIC ACID									
PART	20	CH 4 4	17 2 04(2)	270 5 24 02(2)(e) 270 5 24 02(2)(m)	AP3 3(3)	APC S 1 3 6	IV 2 30	S5A VII	VII 2 VII 4
NO_x	21	CH 8 2	17 2 04(6)(q)	270 5 24 02(2)(l)	AP7 2		IV 2 72		VII 90(1)
PART + NO_x	22		*						
NON FERROUS SMELTERS									
PART	23	CH 4 4	17 2 04(2)	270 5 24 02(2)(e) 270 5 24 02(2)(m) 270 5 24 02(2)(q)	AP3 3(3) AP4 3	APC S 1 3 6 APC S 1 4 2(e)	IV 2 30	S5A VII	VII 2 VII 4 VII 8B(1)
SO_2	24								
PART + SO_2	25								
PETROLEUM REFINERIES									
CO	26	CH 7			AP6 2				
SO_2	27	CH 5 1 5		270 5 24 02(2)(q)	AP4 3	APC S 1 4 2			VII 8B(1)
HC	28	CH 6	17 2 04(5)		AP 5				
CO + SO_2	29								
CO + HC	30								
SO_2 + HC	31								
ALL	32								
PORTLAND CEMENT PART	33	CH 4 4	17 2 04(6)(f)	270 5 24 02(2)(m) 270 5 24 02(2)(e)	AP3 3(3)	APC S 1 3 6	IV 2 10	S5A IV	VII 2 VII 4
SULFITE PULP PAPER									
PART	34	CH 4 4	17 2 04(2)	270 5 24 02(2)(e) 270 5 24 02(2)(m) 270 5 24 02(2)(q)	AP3 3(3) AP4 4	APC S 1 3 6 APC S 1 4 2	IV 2 30	S5A VII	VII 2 VII 4 VII 8B(1)
SO_2	35								
PART + SO_2	36								
SULFUR RECOVERY									
PART	37	CH 4 4	17 2 04(2)	270 5 24 02(2)(e) 270 5 24 02(2)(m)	AP3 3(3)	APC S 1 3 6	IV 2 30	S5A VII	VII 2 VII 4
SO_2	38	CH 5 3	17 2 04(6)(h)	270 5 24 02(2)(q)	AP4 3	APC S 1 4 2(d)			VII 80(1)
PART + SO_2	39								